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*The New international
year book*

THE NEW INTERNATIONAL YEAR BOOK

A COMPENDIUM OF THE WORLD'S
PROGRESS

FOR THE YEAR

1911

EDITOR

FRANK MOORE COLBY, M.A.

ASSOCIATE EDITOR

ALLEN LEON CHURCHILL

NEW YORK
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1912

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PREFACE

The present YEAR BOOK for 1911 is the fifth volume that has appeared since the series was resumed with the publication of the NEW INTERNATIONAL YEAR BOOK for 1907. No essential change has been made in its plan or scope. Like its predecessors in the series, the NEW INTERNATIONAL YEAR BOOK for 1911 differs from all other annual volumes at present published in the English language in being encyclopædic in range and method and not confined to special fields or to a single country. Its purpose is to comprise in one annual volume all classes of information that are now scattered in many volumes, some exclusively statistical, others exclusively historical, biographical, political, or restricted to the United States or to the British Empire; and also to comprise certain features not to be found in other annuals, as, for example, an ample treatment of political events and political discussion here and abroad. In short, the aim has been, through the coöperation of some forty contributors with upwards of 800 pages at their disposal, to produce what may be fairly termed an encyclopædia of the year. As in preceding volumes, the text is written anew, instead of carrying forward from one year to another matter of a permanent sort, descriptive or statistical, which may be readily found in works of reference previously published.

In the United States the work of Congress under the new Democratic majority in the House of Representatives was of unusual interest, not only for the important measures passed, but for the equally important measures that failed to pass. Among the latter were the Reciprocity bill and the bill providing for direct election of senators. The discussion of the Reciprocity measure will be found in the article *TARIFF*, in the section on *Congress* under the UNITED STATES, and in the article *CANADA*. The State elections held in November, 1911, were of especial interest as indicating the possibilities of the Presidential campaign of 1912. Their results in MASSACHUSETTS, NEW JERSEY, NEW MEXICO, NEW YORK, and other States in which they were held are given under the respective State titles and in the paragraph on *Elections* of 1911 in the article UNITED STATES. Among the interesting political events in the history of the municipalities during the year were the remarkable election in Los Angeles, the successful employment of the recall in Seattle, and the success of the reform movement in Philadelphia, which are described in the articles on CALIFORNIA, WASHINGTON, and PENNSYLVANIA, respectively. Under CALIFORNIA also will be found the record of the arrest and conviction of the McNamara brothers, which is also discussed in relation to trade unions in the article *TRADE UNIONS*. The results of the Thirteenth Census so far as made public at the close of the year will be found under UNITED STATES CENSUS, and in the articles on the different States and those dealing with agriculture and manufactures. The important trust decisions under the Sherman law and the discussion to which they gave rise are summarized in the articles on *TRUSTS*, *AMERICAN TOBACCO COMPANY*, and *STANDARD OIL COMPANY*. The article *BANKS AND BANKING*, in addition to the statistical record of the year, includes an account of the important Aldrich plan of reorganization and the arguments for and against it. Other significant developments in social and industrial matters are recorded in the articles *ARBITRATION AND CONCILIATION*, *CHILD LABOR*, *WORKINGMEN'S INSURANCE*, *STRIKES*, *PRICES*, *WOMEN IN INDUSTRY*, *FINANCIAL REVIEW*, *VAGRANCY*, etc.

In the record of foreign politics the outstanding features are the Moroccan difficulty which, for a time, threatened war, and resulted in the negotiation of the Moroccan treaties between France and Germany; the constitutional struggle in Great Britain and the passage of the Parliament act which curtailed the veto power of the House of Lords; the revolution in China which brought that country, at the close of the year, within sight of a republican government; and the TURCO-ITALIAN WAR, which was still indecisive at the close of the year. Among other significant features of the foreign record are the accounts of the difficulties and final failure of Mr. W. Morgan Shuster in his attempts to reorganize the finances of Persia; of the passage of the National Insurance bill in Great Britain, which is discussed under GREAT BRITAIN and in the article *WORKINGMEN'S INSURANCE*; of the negotiations over the Bagdad Railway, which will be found in the articles on FRANCE and GERMANY; of the troubled year in SPAIN, where labor outbreaks approached the dimensions of a revolution; and of PORTUGAL under her new republican government.

Great progress was made on the Panama Canal, the excavation, dredging, and masonry construction being on an unprecedented scale. Among other engineering projects may be mentioned those for supplying water to cities on the Atlantic and Pacific coasts respectively, including the Catskill aqueduct and the aqueduct for the city of Los Angeles. In contrast to the important engineering achievements were several serious failures, notably of large dams, one of which, at Austin, Pa., involved great loss of life. Owing to important developments during the year, it has been necessary to treat with especially fullness the following subjects among others: *AERONAUTICS*; *AQUEDUCTS*; *DAMS*; *RAILWAYS*; *FIRE PROTECTION*; *INTERNAL-COMBUSTION ENGINES*; *IRRIGATION*; *IRON AND STEEL*; *MILITARY PROGRESS*; *NAVAL*

PROGRESS; MUNICIPAL GOVERNMENT [(in connection with which a full list of the commission-governed cities is given); EDUCATION; UNIVERSITIES AND COLLEGES; AGRICULTURE; DRAINAGE; ANTHROPOLOGY; ARCHÆOLOGY; ELECTORAL REFORM; EXPLORATION; POLAR RESEARCH; MEDICINE, etc.

As heretofore, the material for the statistical articles is derived from official sources and in the preparation of these articles as well as those which deal with public affairs in the United States and in foreign countries, invaluable aid has been given by government officials. Among those to whom special recognition is due may be mentioned the following: Col. Frank McIntyre, Assistant Chief of the Bureau of Insular Affairs, for information in regard to the Philippines; Mr. O. P. Austin, Chief of the Bureau of Statistics, Department of Commerce and Labor; Mr. E. Dana Durand, Director of the Census; various officials in the Departments of War, Navy, and the Interior; the Superintendents of Education, Commissioners of Charities and Corrections, treasurers, the officers of colleges, societies, and religious bodies; and the editors of leading newspapers in the States, who have coöperated in the preparation of the paragraphs on State politics and history.

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NOTE: Cross references in SMALL CAPITALS indicate that the allusion is to a separate article; cross references in *italics* denote that the reference is to a subdivision of a main article. A cross reference in *italics*, standing alone in an article, carries the reference to another subdivision of the same article. The letters q. v. (*quod vide*=Latin "which see") in parentheses following a word, indicate that the subject is treated under its own name elsewhere in the volume.

NOTE: In certain tables in this work it will be found, by addition, that the totals do not correspond to the sum of the items. This is the result of the omission or inclusion of certain small items which are not mentioned in the table, but are included in the totals. This is a usage frequently employed in the compilation of government statistics, from which sources the greater number of the tables in the YEAR BOOK are taken.

THE NEW INTERNATIONAL YEAR BOOK

ABBAY, EDWIN AUSTIN. An American artist, died August 1, 1911. He was born in Philadelphia in 1852 and received his early education in Philadelphia and first studied art at the Pennsylvania Academy of the Fine Arts. His artistic endeavors began when he was a small child and it is related that before he was four years of age he used to amuse himself by scribbling figures of men and beasts on the margins of old magazines. His first published picture appeared in *Oliver Optic's* magazine for young people, *Our Boys and Girls*, in 1866. This was an illustrated rebus. Two years later he took instruction in wood engraving. His wood engraving entitled "The First Thanksgiving," was accepted by *Harper's Magazine* before the artist was twenty years old. At the Pennsylvania Academy of the Fine Arts he acquitted himself with signal honor in black-and-white work. Shortly after his graduation he became one of the permanent staff of *Harper's Magazine*, which at that time included Charles S. Reinhart, Howard Pyle, Joseph Pennell, and William T. Smedley. He became a member of the famous "Tile Club." It was the duty of the members of this club to paint tiles and plaques for the adornment of each other's studios. Abbey spent a great deal of time in fulfilling this duty. He was, however, primarily at this period a worker with the pencil. He received the commission from the magazine to illustrate some of the poems of Robert Herrick, and in order to absorb the proper atmosphere for this work he went to England. He lived and wandered about in the portions of the country identified with Shakespeare. After he had illustrated Herrick's *Hesperides* and *Noble Numbers*, he turned his attention to a noteworthy series of Shakespearean drawings. The completion of this task found him with a reputation in both America and England. It was his intention to return to America on the completion of this commission, but English influences proved too strong and he remained in England for the greater part of the remainder of his life. Abbey's transition from pencil to painting was gradual. He had always worked more or less with water colors, and his water-color work had attracted attention in London. In 1883 he was elected a member of the Royal Institute of Water Colors. His first honors with oils came in 1890 when the Royal Academy not only accepted his "May Day Morning," but hung it in a favorable place. Six years later he was elected an associate in the Academy, and in 1908 was made a full academician. His most notable work was done as a decorative painter and perhaps the series by which he will be

longest remembered is "The Quest of the Holy Grail," in the Boston Public Library. His greatest fame in England was won by his painting of the coronation of Edward VII., which he was especially commissioned to do. Other notable pictures in addition to those mentioned above are: "The Trial of Queen Katherine," "Crusaders Sighting Jerusalem" (1901), "Columbus in the New World" (1906), reredos for the American church in Paris, 1907. At the time of his death he was occupied on a remarkable series for the Pennsylvania State Capitol at Harrisburg. A portion of this work had already been completed. Mr. Abbey was a member of many American and European societies connected with art. He was also a chevalier of the French Legion of Honor.

ABBEY, HENRY. An American poet, died June 7, 1911. He was born at Rondout, N. Y., in 1842, and was educated at Kingston Academy and the Hudson River Institute. He edited several papers in New York and contributed to the *New York Leader* and other papers. He was the author of several volumes of poems, including *My Dreams* (1862), *Ballads of Good Deeds* (1872), *The City of Success, and Other Poems* (1883). A complete edition of his works was published in 1904.

ABUSJR. See **ARCHÆOLOGY.**

ABYSSINIA. Formerly the Empire of Ethiopia. An empire (independent) of eastern Africa. The area is variously estimated at from 308,000 to 432,000 square miles; the population, between nine and eleven millions. The capital is Addis Abbeba, with an estimated population of between 30,000 and 35,000. The Abyssinians are members of the Alexandrian Church, the head bishop being a Copt; education (compulsory since 1907 for males) is provided by the state through Coptic teachers. The chief industries are stock raising and agriculture, carried on by primitive methods. Tropical fruits, rubber, and valuable timbers are plentiful. Iron, coal, gold, etc., have been found. Imports through Jibuti in 1908 were valued at about £285,000; through Zeila, the Sudan, and Italian colonies, at about £70,000 (cotton goods, £81,500; American gray shirting, £43,878). Exports by way of Jibuti, about £334,868; Zeila, etc., about £40,000 (coffee, £109,047; hides and skins, £87,304; ivory, £63,838; wax, £36,717). The railway from Jibuti (in French Somaliland) to Diré Dawa (193 miles, of which 111 are in Abyssinia) has been taken over by a new company, which plans to extend the line to Addis Abbeba. Telegraphs (1056 miles) and posts are under French management. The Menelek dollar (the talari, worth about 50 cents) is the

official standard; but barter prevails in many parts.

The regular army of Abyssinia at present consists of mercenary troops under weak central control, and inadequately organized. There are also various tribal troops from the different large provinces in each of which they act as garrison under the *ras*. The imperial troops are for the most part mounted and form an irregular cavalry and artillery, with 50 modern and 30 old type guns, in addition to some Hotchkiss guns for the mountain battalions. The imperial and tribal forces together are estimated at about 1000 men. In addition, there are foot soldiers with varying arms and equipment which in recent years have been improved to a considerable extent. In the event of war unembodied retainers, numbering perhaps 140,000, and somewhat in the nature of a militia, could be added to the regular forces and about 200,000 men put in the field, but only a part would be armed with modern rifles, and these would include many different patterns.

The emperor in 1911 was Menelek II. (born 1844, crowned 1889). His grandson, Lidj Jeassu (or Eyassu), has administered the government (under the guardianship of Ras Tassama) since March 23, 1910. He was born in 1897; proclaimed heir-apparent in 1908; was married (1909) to Princess Romanie, granddaughter of John, former emperor of "Ethiopia."

It was announced on May 18 that Lidj Jeassu, Emperor Menelek's grandson, had been solemnly proclaimed emperor, and that the brother of the empress Taitu, Ras Olie, had been condemned to death for treason. In July and September it was reported that fighting had taken place between the rival chiefs, and it was said that the father of Lidj Jeassu had driven his opponent, brother of the deposed empress, out of his position and seized his territory.

ACADEMY, BRITISH, FOR THE PROMOTION OF HISTORICAL, PHILOSOPHICAL, AND PHILOLOGICAL STUDIES. This body was incorporated by royal charter in 1902. It aims at the promotion of the study of moral and political science, including history, philosophy, law, politics and economics, archaeology and philology. The maximum number of ordinary fellows is fixed at 100. In 1911 there were ninety-nine distributed under four main sectional committees—history and archaeology, chairman, Dr. G. W. Prothero; philology, chairman, Dr. F. G. Kenyon; philosophy, Professor B. Bosanquet; jurisprudence and economics, chairman, Sir W. R. Anson. The president of the academy is Dr. Ward, master of Peterhouse College, and the secretary is Professor I. Gollancz.

ACADEMY, FRENCH (*Académie Française*). The French Academy is the first of the five academies constituting the Institute of France. It consists of forty members and is the final authority on questions relating to the niceties of the French language and of grammar, rhetoric, and poetry, and of the classification of French classics. Four new members were elected in 1911: Gen. Hippolyte Langlois to succeed Marquis Costa de Beauregard; Henri de Regnier to succeed Marie Eugène Melchior, Vicomte de Vogüé; Henry Roujon to succeed Louis Henri Barboux, and Denys Cochin to succeed Jules Albert, Comte Vandal. There was one vacancy in the academy at the end of the year.

ACCIDENTS, CAUSES OF. See EMPLOYERS' LIABILITY.

ACCIDENTS, PREVENTION OF. See LABOR LEGISLATION.

ACCIDENTS, RAILWAY. See RAILWAYS.

ADALIN. Known chemically as brom-diethyl-acetylcarbamide, has the formula $C_4H_{10}O_2N_2Br$. It is an almost colorless and odorless crystalline powder, with a melting point of $116^\circ C.$ ($240.8^\circ F.$), which dissolves readily in alcohol, but with difficulty in water. It is prepared by the action on urea of brom-diethyl-acetyl bromide, obtained by the action of bromine on diethylacetic acid anhydride. Adalin is said to be an efficient and prompt sedative, reducing mental excitement and producing sleep in conditions where a powerful hypnotic is not needed. In ordinary doses it does not depress the heart or respiration, and the sleep induced is restful and dreamless. The drug is recommended as a sedative and mild hypnotic in neurasthenia, hysteria, cardiac neuroses with rapid heart action, chorea, mental disorders with moderate excitement, and insomnia.

ADAMS ACT. See AGRICULTURAL EXPERIMENT STATIONS.

ADAMS, CHARLES FRANCIS. See LITERATURE, ENGLISH AND AMERICAN, *History*.

ADAMS, GEORGE B. An American jurist, died October 10, 1911. He was born in Philadelphia in 1845, and was educated in the public and private schools of that city. He served in the Civil War, and after its close remained in the quartermaster's department in the regular army until 1871. In 1876 he began the study of law and was admitted to the bar from Pennsylvania in 1878. In 1883 he removed to New York City where he specialized in admiralty cases. In 1901 he was appointed by President McKinley to be district judge for the Southern District of New York. He was reappointed by President Roosevelt. For two years before his death he was unable to fulfill his duties on the bench on account of illness.

ADAMS COUNTY. See OHIO.

ADEN. A British dependency on the coast of Arabia; a part of the Bombay Presidency. Area, 75 sq. miles; population 1901, 41,222; 1911, 46,165. Attached to Aden are the island of Perim (area, 5 sq. miles; population in 1901, 2752), the Kuria Muria Islands (five in number), and the Aden Protectorate (area, 9000 sq. miles; population about 100,000). Sokotra, an island off the coast of Africa, is under British protection (area, 1382 sq. miles; population, about 12,000, chiefly Mohammedans). Imports (1909-10) by sea, £2,956,055; by land, £163,693; treasure, £524,706. Exports by sea, £2,621,780; by land, £102,594; treasure, £545,341. Government stores and treasure are not included. The trade is almost exclusively one of transshipment. In 1909-10 1323 merchant vessels of 3,187,479 tons (net) entered the port of Aden; 401 at Perim. A political resident (1911, Brig.-Gen. J. A. Bell) administers the dependency under the Bombay government. Aden is an important coaling station, and by reason of its strategic position is strongly fortified.

ADLER, HERMANN. Chief rabbi of the United Congregations of the British Empire, died July 18, 1911. He was born in Hanover, Germany, in 1839. His father was chief rabbi of Hanover and was afterwards chief rabbi of Great Britain. He was educated at University College, London, and at Leipzig and Prague universities. In 1862 he was ordained and two years later was

appointed minister of the Bayswater Synagogue in London. Here his ministry was remarkably successful, and on the death of his father in 1889 Dr. Adler was unanimously chosen to succeed him. In addition to his chief rabbiship he was, in reality, minister of the Great Synagogue, which is the Cathedral Synagogue of London. Within the Jewish community his sphere of activity included almost every institution of any importance. He engaged in several famous controversies. One of the earliest works which he wrote was *The Jewish Reply to Dr. Colenso's Criticism on the Pentateuch*. Another famous controversy in which he took part was that with Professor Goldwin Smith on the subject, *Can Jews be Patriots?* Dr. Adler was elected an honorary member of the Athenæum Club and was also an honorary D. C. L. of Oxford and an honorary LL. D. of St. Andrews. Among his published writings in addition to those mentioned above, are *A Volume of Sermons on the Old Testament*, several volumes of pulpit addresses, and many articles and addresses on education, social questions, Hebrew literature, and Anglo-Saxon history. He was a contributor to the *Jewish Encyclopedia*.

ADMINISTRATION. SEE UNITED STATES.

ADULTERATION. SEE FOOD AND NUTRITION.

ADVANCEMENT OF SCIENCE. AMERICAN ASSOCIATION FOR THE. A learned society which is a continuation of the American Association of Geologists and Naturalists, organized in 1840. In its present form it was chartered in 1874. The association is made up of eleven sections: Mathematics and Astronomy; Physics; Chemistry; Mechanical Science and Engineering; Geology and Geography; Zoölogy; Botany; Anthropology and Psychology; Social and Economic Science; Physiology and Experimental Medicine, and Education. The association holds annual meetings in different cities of the United States. The meeting for 1911 was held in Washington, D. C., December 27-30. This was the most successful meeting in the history of the association both from point of attendance and from the enthusiasm shown. The total registration of members of the association was 1306. A large number of affiliated and other scientific societies met in Washington at the same time. The opening meeting of the association was called to order by the retiring president, Dr. A. A. Michelson, who introduced the president-elect, Dr. Charles E. Bessey of the University of Nebraska. An address of welcome was delivered by President Taft and to this President Bessey responded. The annual address delivered by the retiring president, Dr. Michelson, was entitled "Recent Progress in Spectroscopic Methods." Among other important addresses delivered in the various sections were those by Professor Frankforter before the Section of Chemistry on "Resins and Their Chemical Relations to the Terpenes"; Mr. Rotch before the Section of Mechanical Science and Engineering on "Aerial Engineering"; Professor Moore before the Section of Mathematics and Astronomy on the "Foundation of the Theory of Linear Integral Equations"; Professor Dixon before the Section of Anthropology and Psychology on the independence of the Culture of American Indians; and Senator Burton before the Section of Social and Economic Science on "The Cause of High Prices." Among

the symposiums held in connection with other societies were those on "Instinct and Intelligence," with the American Psychological Association and on "Soils," with the Botanical Society of America. The following officers were elected for the year 1912: President, Dr. Edward C. Pickering, director of the Harvard Astronomical Observatory; vice-presidents, Section A, Mathematics and Astronomy, A. E. B. Van Vleck, University of Wisconsin; Section B, Physics, Arthur Gordon Webster, Clark University; Section C, Chemistry, W. Lash Miller, Toronto; Section D, Mechanical Science and Engineering, J. A. Holmes, Washington, D. C.; Section E, Geology and Geography, James E. Todd, University of Kansas; Section F, Zoölogy, Professor William A. Lucy, Northwestern University; Section G, Botany, Professor D. S. Johnson, Johns Hopkins University; Section H, Anthropology and Psychology, Professor J. Walter Fewkes, Washington, D. C.; Section I, Social and Economic Science, John Hays Hammond, New York; Section K, Physiology and Experimental Medicine, J. J. McCleod, Cleveland, O.; Section L, Education, J. McKeen Cattell, Columbia University; general secretary, H. E. Summers, Iowa State College; secretary of the council, H. W. Springsteen, Western Reserve University. The next meeting of the association is to be held in Cleveland, O., in January, 1913.

ADVANCEMENT OF SCIENCE. BRITISH ASSOCIATION FOR THE. This society was founded in 1831 for the stimulation of scientific inquiry and the attraction of public attention to its progress. The association holds annual meetings in different cities of the United Kingdom. The meeting in 1911 was held at Portsmouth. The presidential address was delivered by Sir William Ramsay, who called attention to the deficiencies of scientific education in the United Kingdom. He laid special stress on the weakness of the scholarship and examination system. In the Mathematical and Physical Section, the president, Professor H. H. Turner, reviewed recent astronomical work, notably that of Professor Campbell at the Lick Observatory. A number of foreign papers were read, among them one on "The Earth as a Radiator" by Professor W. J. Humphreys of the United States Weather Bureau. Many important addresses were made in the meetings of the other sections of the association. The president is Sir J. J. Thomson. The next meeting of the association will be held at Dundee, Scotland.

ADVENTISTS, SEVENTH DAY. A religious denomination which had its origin in 1845. Its doctrine is based on the belief that the second coming of Christ is near at hand, founded on certain passages in both the Old and New Testaments. Since its foundation, the doctrines of the body as to the second coming of Christ have been modified. While the original founders set a specific date for the second coming, the belief now held by the denomination is that the event is near at hand, but no set time is specified. According to the United States Census of 1906, published in 1910, the body in the United States numbered 62,211 communicants, 488 ministers, and 981 churches. The property in its possession was valued at \$1,454,087. In the Sunday schools were 50,225 scholars with 11,033 teachers. Figures gathered by officers of the denomination indicated that there were at the close of 1911, 23 union conferences, 106 local conferences, 150 foreign mission stations (48 being

in non-Christian lands), and 2769 churches, with 104,526 communicants. The denomination spends annually over \$2,000,000 for the support of all lines of evangelical work. In educational lines it is represented by 86 colleges, academies, and intermediate schools, and 594 primary schools. There are 28 denominational publishing houses, printing 126 papers. The publications are issued in 67 languages. The denomination also maintains over 80 sanitariums, with which there are connected over 2000 physicians and trained employees. The next general conference of the denomination meets in 1913.

In addition to the Seventh Day Adventists several other bodies bear the name Adventists. These have practically nothing in common with the former denomination except possibly the doctrine of the second coming of Christ, and even there the connection is remote. These bodies are the Evangelical Adventists, numbering in 1911 481; Advent Christians, 26,799; Church of God, 611; Life and Advent Union, 509; Churches of God in Christ Jesus, 2124.

AERIAL GUN. See NAVAL PROGRESS, paragraph *Guns and Gunnery*.

AEROCAR. See AERONAUTICS

AERODROMES. See AERONAUTICS.

AERONAUTICS. Under this title it is the custom of the YEAR BOOK to include the navigation of the air by such dissimilar means as the aeroplane and other mechanical devices heavier than air, the dirigible balloon, and the aerostat or spherical non-dirigible. In all of these fields in 1911 and the years immediately preceding, there was notable accomplishment and progress, but most of all in aviation where improvements in the design of supporting planes and propelling motors had put mechanical flight on a practical basis.

AVIATION

The record of accomplishment in aviation in 1911 best can be understood when the events of the years immediately previous are summarized. After the first announcement of the Wright brothers' flight with a motor-driven aeroplane, December 19, 1903, it was almost two years, September 26, 1905, before a flight of eighteen minutes' duration was made by these American inventors. Then on July 6, 1908, Henry Farman in France with his biplane made a flight of twenty minutes' duration, and later made the first cross-country flight, flying on October 30 from Bouy to Rheims, a distance of seventeen miles. In the meantime Orville Wright on September 9 had made a flight of over one hour's duration, and other aviators were entering the field, so that by June, 1909, when the first great aviation meeting was held at Rheims there were numerous contestants. In this year, on July 25, Louis Blériot flew across the British Channel, and Henry Farman, November 3, made the then notable record of a flight of 144 miles in four hours and six minutes at Mourmelon. In 1910 many aviators achieved success, especially in flights from city to city, across the English Channel, across the Alps, and finally over a measured course 385 miles in 7 hours, 48 minutes, by M. Maurice Tabuteau were recorded. Such achievements were being secured by an ever-increasing number of aviators, whose ranks from time to time were diminished by fatal accidents.

From such beginnings and early flights the

use of the aeroplane, as well as the mechanical efficiency and construction of the machine itself, developed until by the beginning of 1911 the practice and theoretical knowledge of aviation had reached a point where the condition and problems of the air and its navigation were well recognized. The monoplane or aeroplane with a single supporting surface, whose possibilities hardly had been indicated in the earlier days, had been developed so that in speed and efficiency it had rivaled, if not surpassed, the older biplane so successfully used by the Wright brothers in the United States and France and more or less imitated by French and American inventors. Flight with aeroplanes had been extended from mere exhibitions and demonstrations where conditions of wind and weather had to be considered, to long-distance flights extending even across the continent, and the development was compared quite properly with that of the automobile.

The early aim of the aeroplane designer was to secure a large supporting surface that with its engine should involve a minimum weight for the power secured. Consequently, earlier machines were made with a light framework of wood, the breaking of which led to many serious accidents. With increase in power of the gasoline engines, and with no substantial increase in its weight, it was found possible to reduce the area of the supporting planes and to make the machines themselves of greater strength, even at an increase in weight. This was particularly the case with the monoplane where high speed was secured, especially in the machines of Blériot, and led to a reduction in the size of the supporting surface.

At first these monoplanes were used for short distances and high-speed flights, at which they figured successfully in many competitions, but soon their possibilities were realized and by 1911 they were able to compete successfully not only in speed and distance competitions, but in such reliability and other tests as were demanded by European war offices.

At the beginning of the year 1911 a gradual development in all fields of aviation was looked for rather than extraordinary incidents, which characterized the earlier stages of the art. It had passed from sensational exhibitions for the curiosity of the multitude to the realm of accepted fact, and further developments were to come along lines of sound engineering and economic practice.

This, as will be shown, was in general the tendency of the year, which, taken all in all, was one of distinct progress. There was not an undue imitation of successful machines by the many manufacturers, but more or less development along original lines. This was evidenced by the fact that during the year it was estimated that some two hundred different types of aeroplanes were in use, of which a greater proportion than ever were practical. Naturally there was also an increased number of aviators, both amateurs and professionals, and the aggregate mileage was reaching large figures. In the United States alone some four hundred new aeroplanes were constructed and of these about three hundred were successful, which was a far greater proportion than in any previous year.

In all branches of aviation there was considerable development, and the machines produced were of greater efficiency than in previous years. A large number of exhibitions were held in all

the leading countries of the world and various competitions took place, for which valuable prizes were given. There were so many contestants, however, that the individual winnings and results were hardly as great as in previous years; and it was believed that this feature of practical aviation had reached its highest point. Vast outlays were made by manufacturers of machines in Europe, which already had begun to number long-established engineering firms, yet it was considered that the commercial possibilities would rest rather in the military use than in more general fields other than sport. Numerous sales were made to foreign governments, and military tests made for the French army led to important results from a commercial as well as military standpoint.

Owing to competitions and military applications the main aim in the design and construction of machines during the year was to increase speed, and this naturally required engines of greater horsepower, so that motors from 140 to 200 horsepower were being fitted to the more recent aeroplanes. With the increase of speed the dangers of flight were diminished, especially under unfavorable conditions of weather and changes of the wind. The most apparent shortcoming in the aeroplane of 1911 was the inability of the aviator to control his speed as desired, and especially to start his motor again in case of stoppage or sudden failure.

While the Curtiss and Wright biplanes were frequently seen in the United States in long-distance flights and competitions, where they gave good accounts of themselves, in the various European races and long-distance events the monoplane appeared to somewhat better advantage than the biplane, and the tendency of the year was to construct monoplanes stronger and of more compact form, with powerful engines. In other words, the monoplanes were being made so rigid as to need but the smallest possible number of stays for their frames and planes and thus reduce the amount of air resistance.

An interesting feature of the year was the construction of aeroplanes with bodies more closely resembling that of a bird, which became most marked in the Austrian Etrich monoplane. These covered bodies were first developed in the case of the monoplane, and the long covered fuselage was found much more useful to support the propeller and side planes than a construction of spars and at the same time it diminished resistance. Furthermore, such covering naturally involved the enclosing of the motor, and at the Paris Aviation Salon, held in December, it was noted that most of the more advanced types of machines were built with enclosed motors.

Another tendency of the year was to increase the strength of the various aeroplanes by the increased use of tubular steel of high tensile strength for the framework. At the Paris Salon of 1911, of forty-two machines exhibited, six were built entirely of steel, five of steel and wood, and one of steel and aluminum. The frames of the remainder were of wood. Sheet steel has been used in some cases for the planes, and several machines have been shown with bodies of pressed steel.

In the general design of the planes various conditions had to be taken into consideration. The ability to warp the wings being controlled by the Wright patents, some other means was

required by other makers. Yet the flexibility of the planes themselves was no longer desired if smaller controlling planes or ailerons could be used. These have been found very satisfactory, and they figure in most of the aeroplanes of the day. Some device for reducing the size of the planes or reefing them was also suggested, as by telescoping, but nothing practical along these lines was forthcoming.

Taken all in all, the great tendency of aeroplane design was the reduction of resistance and supporting surface, and using the power of the motor to compensate for it. With increased power and means of control at their disposal aviators during the year were able to fly under conditions of wind which previously would have been considered impossible. Flights in winds up to thirty miles an hour were not uncommon, and in the long-distance trips the amount of time lost by bad weather was being greatly diminished.

MOTORS. With the conditions of the planes and propeller virtually established, the question of the engine was perhaps the most important one to be considered by the aeroplane engineer. There was a demand for increased reliability and ability to operate the motor at different speeds, and start and stop it at will. In fact the Short biplane was provided with a double motor, so that power was available in the event of the failure of one engine. That this was a desired condition was shown by the fact that the *Scientific American* offered a prize of \$15,000, given by Edwin Gould, for the most perfect and practicable heavier-than-air flying machine designed and demonstrated in the United States, equipped with two or more complete power plants (separate motors and propellers) so connected that either may be operated separately or both used together.

The aviation motor, as a type of internal-combustion engine developed under special conditions, has been designed to secure the maximum power with the minimum weight. With this end the object has been to secure as many air-cooled cylinders as possible, so as to give out the greatest power for the weight involved. Yet many aeroplanes were fitted with four-cylinder water-cooled motors, a particularly efficient example being that used in the Bréguet biplane.

The problem in 1911 was to secure increased flexibility. The motor should be capable of an economical speed for ordinary conditions of flight, but furthermore it should be capable of instant acceleration when the aviator meets a strong current or air-hole which tends to alter his equilibrium. In addition, it should be possible to control the motor when gliding to earth for a landing without the danger of the machine being stopped by the propeller, acting as a brake. With some aviation engines it was impossible to reduce speed, while with others there was but a limited amount of flexibility. Furthermore, improvements in the method of lubricating and carburetting were needed, and all these considerations involved a gradual and careful improvement.

Many of the propeller shafts were directly connected to the countershaft of the engine, so that the velocity of the latter is restricted. For that reason renewed interest was being manifested in the chain drive as used by the Wright brothers on their biplane. This would permit a high-speed engine, with a large propeller turn-

ing more slowly and more efficiently, and reproduce to a large extent the conditions under which an automobile motor is operated, with the change of speeds through gears or otherwise.

At the end of 1911 it was an open question whether the aviation motor of the future would be further along original lines or there would develop additional modification of the automobile motor, which already had been taking place. Yet aviators had been prompt to introduce all improvements made in motor-car engines that are applicable, and several monoplanes were supplied with self-starting engines.

In the efforts to secure the improvement of the aeroplane motor in the interest of increased efficiency and general reliability, there has been an attempt to eliminate the torque caused by the varying eccentricity of the pistons in the rotary engine. To improve this condition M. Anzani suggested the insertion of two groups of cylinders, one behind the other, in order to balance the torque of one group by that of the other. The gyroscopic effect of the rotary engine has proved a source of trouble, and while it is desirable to use this effect to secure automatic stability, yet no satisfactory results were reached. Various independent gyroscopic devices have been suggested to increase the stability of the aeroplane, but none was considered practical.

All things considered, during the year there were no revolutionary changes in the motors employed with the leading types of aeroplanes. Of the thirty-one machines entered in the French military trials, twelve had Gnome motors and seven Renault. The Gnome motor achieved considerable vogue in Great Britain and the United States, yet in the latter country the Wright and Curtiss types continued pre-eminent. With many of the newer machines, silencers were being used, and it was thought that their application would be very general; in fact they were demanded in the British military specification issued at the end of the year. Already mufflers had been adopted by the Wright brothers for their motors and silence was considered no less desirable to the aviator than it was essential as a military necessity for scouting and reconnaissance.

Among the many machines developed during the year were various unusual types, a large proportion of which naturally failed of success. Two triplanes, namely, the Astra-Wright and the Paulhan, were seen in the French military competition flights, but did not achieve the success of the older types.

While the French have maintained preëminence in the construction of aeroplanes, a new German design attracted favorable notice during the year. This was the *Albatross*, a biplane in which are flexible extensions of the main planes at the rear in place of ailerons. These extensions are warped by wires much after the fashion of the familiar Wright biplane. This machine, of which twenty had been sold to the German government, and six to Russia, was considered by critics typical of the latest developments at the close of the year, inasmuch as it had a monoplane body which became flat at the rear and terminated in a horizontal rudder. Above the tail was located a vertical rudder in the shape of a fin, while the lower plane was very short. The two planes are connected by diagonal struts or braces in place of the more usual truss wires.

CARRYING CAPACITY. During the year the passenger-carrying capacity of the aeroplane was developed. On January 20 six passengers were carried by M. Sommer, and on March 24, in a machine of his own design, he was able to carry aloft twelve passengers with a total weight of 1436.5 pounds. August 29, with six passengers Sommer flew a distance of ninety-nine miles, and on October 16 he carried six passengers from Rheims to Mourmelon and back, a distance of thirty miles. M. Bréguet on March 23 had carried eleven passengers for three kilometers in a flight at Douai. So much progress has been made along these lines that Blériot built for Henri Deutsch de la Meurthe a passenger-carrying machine that was termed an "Aerial Taxi-cab." This machine had a finished body, like that of a taxicab, and the four passengers entered by a side door, sitting behind the pilot who was placed in front with a foot tiller and other contrivances at his command. A 100-horsepower Gnome motor was mounted on top of the cab, together with the fuel tanks and the spread of wing was forty-three feet from tip to tip, while the over-all length was forty-six feet. This machine ready for flight without passengers weighed 1540 pounds. There were pneumatic cushions to protect the passengers in case of rough landings, and mica windows through which the landscape could be viewed. The Deutsch "taxicab" or aerocar was considered to mark an epoch in providing comfort and convenience for passengers; and it was predicted that closed bodies for aeroplanes would soon be developed along lines similar to those used in motor cars.

FRENCH MILITARY TRIALS—TECHNICAL ASPECT. At the trials made by the French War Department in October, the results were based upon

$$\frac{\text{speed} \times \text{useful load}}{\text{fuel consumption}}$$

The actual test consisted in a flight around a measured course with a single passenger beside the aviator. The first place in the competition was achieved by the Nieuport monoplane, which at the end of the year was considered by many critics to be a most advanced type of aeroplane. Aside from the military aspect, this competition was useful in developing many mechanical features and in forming a basis for the comparison of the leading French types. The conditions of the competition involved non-stop flights over a measured course aggregating 186 miles, with a load of 300 kilograms in addition to the fuel for the motor. A mean speed of at least sixty kilometers per hour was required, and the various machines must be easily transportable, and built to land upon and rise from rough ground. They must have a carrying capacity of three persons, and be able to reach a height of 500 metres in fifteen minutes. The Nieuport monoplane, equipped with the Gnome 100-horsepower motor, with M. Weymann as pilot, received the first award, which involved the purchase of the machine at \$20,000, and ten more of the same type at \$16,000 each. Weymann made in the speed trial an average rate of seventy-five miles per hour. Second place was achieved by M. Prévost with a Deperdussin monoplane, also equipped with a Gnome 100-horsepower motor; and third place by M. Fischer with a Henry Farman biplane, and a motor of the same general size and type. Two Maurice Farman biplanes and a Savary biplane also competed, and were placed in the order named. The

second award was the purchase of six machines at \$8000 each, and the third, four machines at the same price. It will be seen, therefore, that at the close of the year the French army was in a position to develop its aeroplane service in a most effective fashion as, in addition to the machines so ordered, a large number had been acquired by individual purchase.

In fact, it was announced that the French War Department would purchase no less than 350 aeroplanes for the army during 1912, ordering these machines in lots of twenty, fifty, and even one hundred from the leading French constructors. Having used some twenty-nine aeroplanes for reconnaissance work in the autumn manoeuvres, it must be assumed that the war office was convinced of their usefulness. The French army aeroplanes were to be known as "avions," in commemoration of the first army aeroplane built and experimented with by Clément Ader in 1897, and preserved in the *Conservatoire des Arts et Métiers* at Paris. These aeroplanes had a distinct military importance which will be considered in an appropriate section of the article on MILITARY PROGRESS.

In connection with the discussion of the value of the aeroplane in warfare, the possibilities were brought out by the fact that on July 3, 1911, eleven aviators in the "Circuit of Europe" competition, flew across the English Channel from Calais to Dover, and a twelfth on the following day, thus making commonplace the achievement of Blériot on July 25, 1909, when this flight first was successfully essayed. Two days later ten of these aviators returned to France, and the fact immediately suggested the possibility of an over-sea invasion by aeroplanes as a military event of the future.

FRENCH AEROPLANE INDUSTRY. The event of the interest in aviation in France was illustrated by the activity of leading French manufacturers. There were six firms, Blériot, Train, H. Farman, Pelterie, Bréguet, and Nieuport, who were more or less prominent among French manufacturers in this field. Their output for the entire year was estimated at 822 machines, of which 410 were sold to various governments, 367 were used in exhibitions and for instruction, and 46 for sport. The output of other large firms, such as Maurice Farman, the Astra Company, Antoinette, Paulhan, Morane; Deperdussin, Sommer, and Voisin, was estimated at over 1600 machines, while at least several hundred were constructed by various individual manufacturers.

Statistics from seventeen French firms elicited figures for some 1300 aeroplanes, with an engine horsepower of about 60,000. These machines had carried more than 5000 passengers, and had made over 3000 cross-country trips in excess of ten kilometers (6.2137 miles) in addition to flights around aerodrome courses, which were estimated at over 500,000 kilometers (310,685 miles). In other words, there were recorded flights for about 1300 aeroplanes which approximated 8300 hours spent in the air. As these figures were compiled during the late summer of 1911, it will be appreciated that the totals for the year would be correspondingly increased.

AMERICAN DEVELOPMENTS

While most of our discussion so far has concerned European conditions, it must not be inferred that American aviators were not active. The original masters of mechanical flight, the Wright brothers, were engaged not only in the

manufacture of their improved biplanes and in the training of aviators, but also in practical experiments undertaken with their usual care and thoroughness to investigate atmospheric conditions, while the possibilities of the aeroplane were widely extended by Curtiss in experiments in which he demonstrated the complete feasibility of rising from the surface of the water or landing thereon. In fact, the Curtiss hydroplane experiments were among the most important of the year.

In 1911 the manufacture of aeroplanes in the United States, as well as in Europe, had reached a point where it might be considered an independent industry. It was estimated that at least 750 aeroplanes were built during the year by manufacturing concerns and by various individuals. Of these about 200 represented the output of our recognized manufacturers, and of 174, the owners of which were definitely known, 64 were purchased for private use, 105 for exhibition purposes, and 11 were sold to various governments. About 425 aeroplane engines were sold during the year, and a number of new types were being developed in addition to the Wright, Curtiss, and foreign motors, such as the Gnome, that were sold in the American market.

WRIGHT GLIDER EXPERIMENTS. In October, 1911, the Wright brothers returned to the scene of their original notable experiments at Kitty Hawk, N. C., and Orville Wright carried on a series of experiments with a motorless glider which was in many respects similar to the model B Wright machine frame, but with a smaller surface of planes and a larger rudder. Flying or gliding in the face of a wind, Mr. Wright was able to attain greater heights, greater distances, and stay in the air longer than in any other flights of this kind previously attempted. Mr. Wright not only was able once more to show his wonderful manipulative skill with an aeroplane in the air, but to study wind and stability conditions free from other considerations. In a 50-mile gale he was able to soar to a height of over 200 feet, remaining in the air 10 minutes and 34 seconds, and advancing his aeroplane about a quarter of a mile.

HYDROPLANES

HYDROPLANES.—The first successful American hydroplane was that of Glenn H. Curtiss, which was shown at San Diego, Cal., on Jan 26, 1911. In March, 1910, Fabre, with a French monoplane he had invented, had shown his ability to rise from the surface of the water. This Curtiss hydroplane of 1911 was a biplane equipped with floats in place of the usual landing skids, following the lines of previous experiments made at Hammondsport, N. Y. The most successful type of machine was fitted with a single long, narrow scow-shaped pontoon, made of wood, 14 feet long, 2 feet wide, and a foot in depth, and capable of sustaining a weight of 1400 pounds. These hydroplanes were fitted with wheels, also, so that they could alight on land as well as water. Several were built for the United States navy, and one has been sent to Russia. With these hydroplanes United States naval officers made some interesting flights at Annapolis. See NAVAL PROGRESS.

In further experiments with the hydroplane Mr. Curtiss found it possible to launch the machine from a wire so that a single guy or

wire could be stretched on a battleship from the boat deck to the bow, and with the aid of two other auxiliary wires to keep the plane from falling, it could glide down until sufficient headway was gained to preserve the balance. This demonstration was considered of importance, inasmuch as it made possible the launch of an aeroplane from a battleship, or other vessel, when the sea was too rough to permit rising from its surface, and at the same time there was required no platform or elaborate arrangement that would interfere with the guns, the wire guys being susceptible of being rigged rapidly and quickly removed.

Aside from such military application, the Curtiss hydro-aeroplane was utilized in an interesting flight down the Mississippi River made by Hugh Robinson, October 17-21, carrying 5000 pieces of mail which were collected and distributed along the route. The trip extended from Minneapolis to Rock Island, a distance of 314 miles. It was abandoned for lack of financial support.

A notable flight of more than 110 miles entirely over water was made by Harry Atwood in a Burgess hydro-aeroplane on December 21 from Lynn, Mass., around Cape Cod to Narragansett Bay, in 2 hours and 45 minutes. The trip was made with one of the pontoons broken, which accident he had met with the night before, in making a flight at Lynn.

OTHER HYDROPLANES, notably of the Wright brothers, in the United States, Voisin in France, and Roe in England, were developed during the year. The Voisin machine, known as the *Canard*, was a biplane with a long body projecting forward in front. It was mounted on four floats designed by M. Fabre and constructed of several layers of veneer. It made many flights on the Seine during the summer of 1911. The introduction of the hydro-aeroplane was considered a great advantage to the development of aviation, as it made possible flights without an aerodrome, or special ground, especially over rivers and canals, with a minimum of danger.

In all the leading countries of the world schools for aviation have been developed aside from those maintained by the different governments for the instruction of military and naval aviators, and aeronauts. The fullest opportunity was offered to purchasers of new machines, and all desiring proficiency in aviation; and the requirements for pilots' licenses were made much more rigorous than heretofore.

The principal American aerodromes in 1911 were at Nassau Boulevard, Mineola, Belmont Park, Bergen Beach, all in the vicinity of New York, Washington Park and Kinloch, St. Louis, two fields near Chicago, one at San Francisco, several near Los Angeles, the army aerodrome at College Park, Md., and a field near Boston. In December the Signal Corps of the United States army, opened a school at Augusta, Ga., for the training of aviators, and an active winter season was promised there. Winter schools were also opened at Palm Beach and Miami, Fla., and at San Diego Bay, Cal. During the year schools were open for the training of aviators at tuition fees ranging from \$250 to \$750 for the course of instruction, and among the more prominent schools have been those of Wright, Curtiss, Burgess, Moissant, Benoist, Atwood, Eaton brothers, Gage, and Schneider.

Up to the end of December, 1911, eighty-two aviation pilots had been licensed in America.

It is interesting to record that No. 1 on this list was Glenn H. Curtiss. The tests for aviators are prescribed by the International Aeronautic Federation and are conducted by the representative of some duly accredited club. The tests included two distance tests, involving a flight of not less than five kilometres (3.11 miles), an altitude test of at least fifty metres, and a landing test to be made by stopping the motor within fifty feet from a point designated by the applicant.

One of the developments of the year was the increased attention being paid to the scientific study of aeroplanes of various types. In France several engineering laboratories were engaged in the study and perfection of the various types. M. Eiffel, the distinguished engineer, continued his experiments which had been carried on since 1905, and Professor Prandtl of Göttingen in a special laboratory was engaged in studying the conditions of the movement of the air in the wind tunnel. These wind tunnels are employed by numerous investigators, and the laboratory equipment for practice and exact study was highly developed.

In connection with the scientific study of aerial problems, there was opened on July 6 an aeronautic institute at Saint-Cyr, founded by M. Henri Deutsch de la Meurthe, who for many years had been a liberal patron of aviation.

AMERICAN FLIGHTS AND COMPETITIONS

Progress in aviation in the United States during 1911 was indicated by a number of important long-distance flights and by competitions in which American and foreign aviators participated. In the long-distance flights the work of American pilots and their machines appeared to good advantage, and more than satisfactory comparison with the best European performances could be made, as will be seen from the summaries given below.

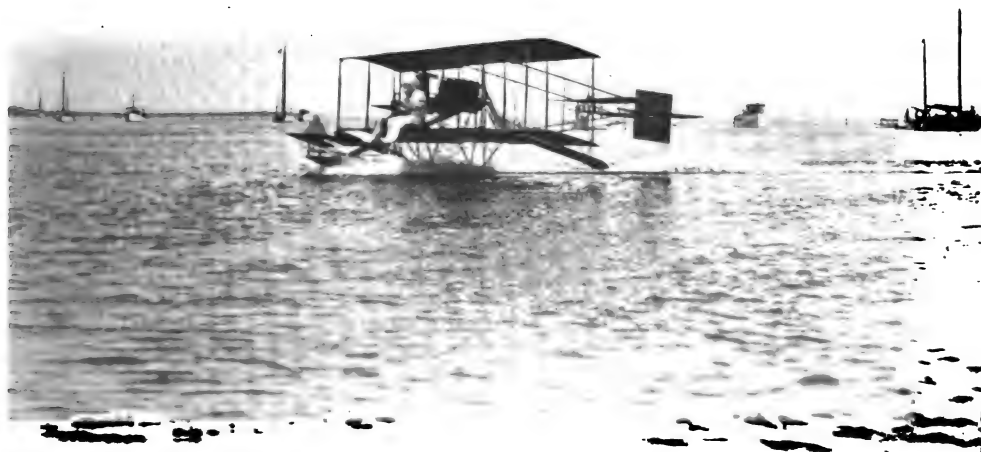
Nevertheless, there was not the widespread interest in aviation, such as was noted in Europe, especially in France, and support by the government was most limited. A number of competitions and meets were held at Los Angeles, Mineola (Long Island), San Francisco, San Diego, Boston, and elsewhere, as well as at fairs and other gatherings, but for the most part without the exceedingly valuable prizes characteristic of the French contests. Nevertheless, such foreign aviators as Sopwith, Grahame-White, and others were attracted to the United States, and participated in various meetings with considerable profit. The work of army and navy aviators was deserving of commendation, especially with the small appropriations available for its prosecution. This is referred to more at length in appropriate sections of the articles on **MILITARY PROGRESS** and **NAVAL PROGRESS**.

NOTABLE FLIGHTS

One of the first important flights to take place in 1911 was by J. McCurdy, with a fifty-horsepower Curtiss biplane, in which he flew on January 30 from Key West, Fla., to within ten miles of Havana, Cuba, accomplishing a distance of about ninety miles in two hours and eight minutes. A leak in his oil reservoir necessitated his descent, and he was picked up by the United States torpedo-boat destroyer *Paulding*, which was following him, and taken to Havana, a distance of six miles.



BURGESS HYDRO-AEROPLANE, MARBLEHEAD BAY, DECEMBER, 1911



CURTISS HYDRO-AEROPLANE AT MIAMI, FLORIDA

HYDRO-AEROPLANES OF 1911

Among the noteworthy flights of the year was one by Lincoln Beachey in a headless Curtiss biplane in which on June 27 he made a dip over Niagara Falls, and then flew down through the gorge, passing under the steel arch bridge. This was a thrilling and apparently reckless exhibition, but it served to demonstrate the complete control of the machine by the aviator. Other sensational flights, often over cities, were made by Ovington, Masson, Sopwith, Lewkowitz, Robinson, Ely, Willard, Hamilton, Atwood, Jannus, and others.

ATWOOD'S FLIGHTS. A notable American cross-country flight was that of Harry N. Atwood, which began at Boston on June 30 and ended at Washington on July 11. He employed a Burgess-Wright biplane, and in the course of his flight passed over the course of the Harvard-Yale boat race and the assembled spectators at New London. The longest stage of the journey was from Atlantic City to Baltimore, 122.40 miles. On August 14, Atwood began a flight from St. Louis to New York via Chicago, a distance of 1266 miles. This required twelve days, with a total flying time of twenty-eight hours and fifty-three minutes. The average daily flight amounted to 105.5 miles and average speed of 44.88 miles. There were twenty stages to the journey, which was accomplished without damage on landing and starting and with a minimum of motor troubles, the engine used being the same as on his previous flight and requiring no attention except the reballing of two bearings.

RODGERS' TRANSCONTINENTAL FLIGHT. Perhaps the most important long-distance flight of the year was by Calbraith P. Rodgers in a Wright biplane from New York to Pasadena, California, a distance of 4017 miles, but somewhat greater as actually traversed. This trip involved frequent repairs to the machine, but it demonstrated that long-distance flight was readily realized, and just what troubles must be anticipated and guarded against. Rodgers left Sheepshead Bay near New York on September 17 and was forty-nine days en route to Pasadena, arriving there on November 5. On November 12 at Compton, Cal., on his way from Pasadena to the Pacific Ocean, he fell and was so badly injured that he was delayed until December 10, when he made his actual flight to the actual shore. While Rodgers was forty-nine days making the trip to Pasadena, yet his actual time in flight was but three days, ten hours and four minutes, or an average speed of about fifty miles an hour. His best day's work was 231 miles.

This first trans-continental trip by aeroplane recalled the first motor journey from San Francisco to New York, made in 1903 and requiring sixty-five days. By 1908 this time had been reduced to fifteen days, two hours and twelve minutes, so that a similar rate of development for the aeroplane could be reasonably expected. The mechanical analysis of Rodgers' trip is not without interest. The weather was responsible for the loss of eleven days on the journey, and thirteen and one-half days were consumed in making repairs. These repairs included an aggregate of two and one-half days for the engine and several days where the accidents were caused not by failure or wear of the machinery or planes, but by unfortunate landings or collision with objects. Rodgers repeatedly was able to outdistance the special train that accompanied him, and it was clear that a transcontinental trip in ten days could be achieved with a few

improvements in machinery and devices to insure increased stability in windy weather.

An aeroplane race from New York to Philadelphia for a prize of \$5000, was started on August 5. The competing aviators, L. Beachey, H. Robinson, and E. Ely, all used Curtiss machines, with Curtiss engines, and the winner, Beachey, made the flight of approximately eighty-three miles in one hour and fifty minutes, with a single stop of ten minutes.

At the meeting of the Harvard Aviation Society a tri-State race was held on Labor Day, September 4, over a course of 174 miles, which extended from Boston to Nashua, then to Worcester and Providence, and return to Boston. Two of the four competitors starting finished, and the winner was E. Ovington, in a Blériot machine with Gnome engine. The second was Lieutenant Milling in a Burgess-Wright machine with Wright engine, the net flying time being three hours, six minutes, twenty-two and one-fifth seconds, and five hours, twenty-two minutes and thirty-seven seconds respectively. The prizes were \$10,000 for first place and \$5000 for second.

FOREIGN FLIGHTS AND COMPETITIONS

Throughout Europe the greatest interest was manifested during the year in long-distance flights and competitions for which valuable cash prizes were given, often by newspapers, and in many cases by individuals. The tendency was toward more practical work involving greater distances, and flights from city to city, such as were involved in the "Circuit of Britain" and the "European Circuit" competition, marked noteworthy advances. True, there was much interest in competitions at the various aerodromes, but these too were more practical, looking towards development and improvement of the machines rather than sensational exhibitions. In fact, it might be said as characteristic of the year that the merely spectacular and sensational side of aviation had passed, and the interest of the public while not abated was more general and critical.

An important European flight was made on February 1 by Captain Bellinger, who flew from Paris to Pau, 450 miles, in four stages. Captain Bellinger employed a Blériot monoplane, and accomplished the distance in two days, with a total flying time of ten hours and twenty-three minutes. His first day's flight from Paris to Bordeaux, 330 miles, was made in eight hours and twenty-two minutes. A record of quite a different nature, but also indicating progress in machine construction, was made on February 10, by F. Champel, who in a single day made sixty-two landings with a Blériot monoplane.

On March 5 Lieutenant Bague of the Fourth Algerian Rifles, in an attempt to cross the Mediterranean, in a Blériot monoplane, flew from Cape Antibes, near Nice, Italy, to the island of Gorgona, near Corsica. The air-line distance was estimated at about 124 miles, but the aviator lost his way in the clouds and flew much further, being in the air four hours and thirty-two minutes. This was the record over-sea, non-stop flight for the year. On June 5 Lieutenant Bague attempted a second flight to Corsica from Nice, in the course of which he perished. He was last seen near Cape Antibes by a fisherman, and it was presumed that, accident overtaking the machine, he fell and was drowned.

PARIS-PUY-DE-DÔME FLIGHT. A special Michelin prize of 100,000 francs for the first aviator to make a trip with a passenger from Paris to the summit of the Puy-de-Dôme, an air-line distance of 220 miles, with one stop, within six hours, was won on March 7, by M. Eugène Renaux in a Maurice Farman biplane with M. Senonque as passenger. His time was five hours and seventeen minutes, of which four hours and fifty-one minutes was actual flying time.

LONDON TO PARIS FLIGHT. An important non-stop flight took place on April 12, and amounted to about 250 miles in three hours, and fifty-six minutes. This was made by M. P. Prier from Hendon near London to Paris, in a Blériot monoplane, and was the record time and distance for a cross-country non-stop flight.

PARIS-MADRID RACE. This important race had a most inauspicious beginning on May 21, in a serious accident whereby M. Berteaux, the French minister of war, was killed, and M. Monis, the premier, injured by the falling monoplane of M. Train, who had lost control of his machine. (See FRANCE.) This accident reduced the number of competitors to but six, and but one of these was able to complete the 842 miles of the course, which was divided into three stages: from Paris to Angoulême, 248 miles; to San Sebastián, 208 miles; to Madrid, 386 miles. The race was started on May 21 and 22, from the aviation field at Issy-les-Moulineaux, and was won by J. Védérines, in a Morane monoplane with a Gnome motor. Védérines' total elapsed time was thirty-seven hours, twenty-six minutes, twelve seconds, or a net flying time of fourteen hours, fifty-five minutes, eight seconds. The second in this competition was L. Gibert in a Blériot monoplane, with a Gnome motor. His machine upset on the last stage from San Sebastián to Madrid. The interesting feature of this race was that it involved the crossing of the Pyrenees Mountains, and in so doing Védérines was compelled to rise to a height of some seven thousand feet. Both Védérines and Gibert were attacked by eagles on this stage of the journey.

EUROPEAN CIRCUIT RACE. On June 18, there was started at Paris this important race for which prizes aggregating some \$97,500 were announced. Like the Paris-Madrid competition its beginning was marred by fatal accidents, in which three aviators, one competitor and two military officers were killed in the presence of some 700,000 spectators assembled at Vincennes. The conditions involved flight from Paris to Brussels, via Liège and Utrecht, then to London via Calais and back to Paris, a total distance of 1073 miles. More than forty started, and of these eight finished. The winner was Lieut.-Jean Conneau in a Blériot monoplane. His total time was fifty-eight hours, thirty-eight minutes, and four-fifths second. Second and third respectively, were Garros, also in a Blériot, and Vidart in a Deperdussin; Renaux in a Maurice Farman biplane carried a passenger for the entire trip. Lieutenant Conneau's share of the prize money was \$21,244.

PARIS-ROME RACE. A prize of \$20,000 was offered for a race from Paris to Turin via Rome, a distance of 1300 miles. This race, which attracted twelve starters from a field of twenty-one entries, was never finished, so only four of the contestants were able to reach Rome where it was abandoned. It was started on May 28,

and the conditions prescribed that contestants should alight where and when they desired so long as the time limit of June 15 was not exceeded. The best performance was by Lieutenant Conneau in a Blériot monoplane. Other competitors were R. Garros, also in a Blériot, A. Frey in a Morane monoplane, and H. Vidart in a Deperdussin monoplane. Frey when on the third stage fell near Ronciglione, Italy, breaking both arms and legs.

CIRCUIT OF BRITAIN RACE. This competition, organized by the London *Daily Mail* with a prize of \$50,000, provided for a 1010 mile circuit of Great Britain in five sections. The start was at Brooklands near London, and the towns included were Edinburgh, Glasgow, Carlisle, Manchester, Bristol, Brighton, and back to London. There were thirty entries, and nineteen starters crossed the line on July 22. Of these seventeen finished the first section, from Brooklands to Hendon, five traveled to Edinburgh, 363 miles, while four completed the circuit. The winner was Lieut. Jean Conneau ("Beaumont") in a Blériot monoplane, with a net time of twenty-two hours, twenty-eight minutes, nineteen seconds. The second was Jules Védérines in a Morane-Borel monoplane, with a net time of twenty-three hours, thirty-seven minutes, fifty-four seconds. Valentine, with a Deperdussin monoplane, and S. F. Cody, with a Cody biplane, finished third and fourth on August 4 and 5 respectively.

Other long-distance competitive flights held during the year were the German National Circuit, 1850 kilometers (1168 miles), for a prize of \$25,000, which was won by Benno Koenig, with a passenger, on an Albatross biplane, and the Russian Circuit, 380 miles, for a prize of \$50,000, won by Vasilieff on a Blériot monoplane.

GORDON BENNETT AVIATION TROPHY. The annual Gordon Bennett trophy race in 1911 took place on July 1 at Eastchurch, England, in virtue of the fact that Great Britain held this cup, which had been won in 1910 in the United States by Grahame-White. The distance for this competition was twenty-five circuits round a course of six kilometres, the entire distance aggregating ninety-four miles. The competition in 1911 was won by C. Weymann, representing the United States, in a Nieuport monoplane, his time being 71 minutes, 38.5 seconds. A. Le Blanc of France, with a Blériot monoplane, was second with a record of 74 minutes, 40.2 seconds. E. Nieuport of France, with a Nieuport monoplane, third, with 74 minutes, 37.2 seconds, and A. Ogilvie of Great Britain, in a Wright biplane, fourth with 109 minutes, 10.4 seconds. Other competitors did not finish.

The Femina cup, which in 1910 was won by Mademoiselle Hélène Dutrieu, with a record of 103¾ miles in two hours and thirty-five minutes, was again taken by this distinguished aviatrix, who on December 31 at Etampes, with a Henry Farman biplane increased the distance to 159 miles. On the same day Jeanne Hervieu in a Blériot machine started from Compiègne and made a flight of 155 miles.

The Quentin-Bauchart prize of \$10,000 for aggregate mileage in officially observed flights between May and October was won by M. Maurice Renaux in a Maurice Farman biplane, with 8600 kilometers (4100 miles) to his credit.

The award of the Statue of Liberty prize of \$10,000, made in 1910, was reversed at a meet-

ing of the International Aeronautic Council in Rome in November, and Grahame-White's protests against John B. Moissant and Count de Lesseps were sustained, and the prize awarded to the English aviator. This race, it will be recalled, which was flown at the Belmont Park meeting of 1910, was for the best performance from that point to the Statue of Liberty and back.

SPEED RECORDS. During the year 1911 the speed record for an aeroplane was increased from 67 to about 83 miles per hour. This was achieved on June 21, 1911, at Mourmelon by E. Nieuport in the Nieuport monoplane, in a flight in which he made a record of 4 minutes, 30½ seconds for 10 kilometers, or a speed of 82.7 miles per hour. Previously, on June 16, Nieuport made world's records for 5, 20, 30, 40, 50, and 100 kilometers, the last named distances being made in 46 minutes, 27½ seconds. Speed records of 93 miles an hour for short distances were also claimed for Védérines and Nieuport.

The Duration Record for the longest time in continuous flight was raised on September 1 from 7 hours and 18 minutes, scored by Tabuteau in 1910, to 11 hours, 1 minute, 20½ seconds at Buc by Alexander Fourny, who covered 720 kilometers (447.38 miles) on his Maurice Farman biplane with Renault motor. This was also the record for longest non-stop flight until it was supplanted on December 24 by M. Gobé, on a Nieuport monoplane. He remained aloft 8¼ hours while traversing a closed circuit in the "Criterium de l'Aéro Club" contest, formerly known as the race for the Michelin cup, and covered 740 kilometers (459.81 miles) at an average speed of about 55¼ miles an hour. This contest was for the greatest distance over a closed circuit in one continuous flight. Gobé carried 220 liters of gasoline and 60 liters of oil aloft at the start, and had enough left for 3 hours more when he landed. The flight was made in a wind of 10 to 12 miles per hour.

In 1911 the altitude record of 11,642 feet, made by L. Beachey at Chicago with a Curtiss headless biplane on August 25, was supplanted by R. G. Garros, who on September 4, in a Blériot monoplane with a Gnome motor, at Paramé, rose to the height of 12,792 feet, thus reaching an altitude above the earth's surface in excess of two and one-half miles. New altitude records with passengers were made by H. Hirth in an Etrich monoplane, who flew to a height of 2475 meters (8120 feet), with a single passenger at Berlin, October 1; while Lieutenant Bier in a monoplane of the same type, with two passengers, rose to a height of 1220 meters (4003 feet) at Wiener Neustadt, September 29.

MAIL BY AEROPLANE. During 1911 a number of flights were undertaken to show the possibility of mail by aeroplane. In India experiments along such lines had been undertaken, and on March 14, an aerial post was established in connection with the United Provinces Exhibition, and letters and post cards were carried by aeroplane from the grounds to Allahabad. In France Pierre Védérines on August 13 made a noteworthy flight from Issy-les-Moulineaux to Deauville, near Trouville, a distance of 112 miles, carrying on the aeroplane a package of mail. He made the trip in one hour and forty-three minutes, or at a rate of somewhat better than sixty-five miles an hour. This was faster by one hour and nineteen minutes than the time of the fast railway express between these two cities. In

England on September 8 an aerial mail service was established for a week between Hendon, near London, and Windsor, a distance of twenty miles, with the coöperation of the General Post Office, the proceeds being devoted to charity. Over 100,000 pieces of mail were handled. In connection with the aviation meet at the Nassau Boulevard Aerodrome on Long Island, N. Y., in September, an aerial post was maintained and letters and cards mailed in boxes on the grounds were carried to a tent, sorted, stamped, and placed in mail sacks which were carried by aeroplane to Mineola, and there given to the postmaster. On one occasion United States Postmaster-General Hitchcock was a passenger on a biplane with Captain Beck, and personally carried the mail sack. The mail service was maintained with but one day's interruption during the entire meet.

DIRIGIBLE BALLOONS

The status and general usefulness of the dirigible airship at the end of the year 1911 was a subject about which there was considerable difference of opinion. In Germany and France military dirigibles had been developed at considerable outlay, since the first airship of Count Zeppelin of 1900, and those launched in 1911 showed considerable improvement over older types. On the other hand, their performance in military manœuvres was a matter of dispute, and most unprejudiced military authorities believed that the aeroplane, costing but a fraction of an airship, and readily mastered and operated in various conditions of weather, was far more useful, particularly since a fleet of aeroplanes could be procured for the same expense as a dirigible, and did not require the gas-generating apparatus or other appliances inseparable from a large airship. It was true that the military dirigible could be used for offensive purposes, but on the other hand, it presented a large target, and it was at the mercy of high winds and unfavorable weather conditions. Furthermore, the difficulty of use and maintenance as well as other shortcomings were emphasized by the various accidents mentioned below, and the fact that the German army, whose balloon service had been most generously supported in previous years, was devoting rather more attention to aeroplanes at the end of 1911, seemed to indicate their inability to meet present tests, and that future developments in the field of dirigibles were not so promising as in aviation.

On the other hand it was shown that the Zeppelin airship could rise to a height of 6500 feet and carry a considerable weight, which in the form of high explosive could be dropped with manifest injury to a town, not only direct, but producing panic. Furthermore, with a radius of 600 miles and ability to rise and descend, scouting trips of great value could be made. This naturally suggested the arming of airships and aeroplanes and combats between aerial scouts and bombships were considered inevitable in the event of hostilities. As a matter of fact the German airships were being mounted with guns.

In commercial work progress was made by a new Zeppelin airship, the *Schwaben*, which ran on various sight-seeing trips, even more extensively than the ill-fated *Deutschland* and *Zeppelin VI*. in the previous year. But it was considered that novelty contributed more to the suc-

cess of this venture than the possibilities of realizing safe and rapid commercial travel.

PROGRESS IN DIRIGIBLES

THE AIRSHIP "SCHWABEN." The most important development of the year was the Zeppelin airship *Schwaben*, which was operated on schedule for tourist trips about Germany. The airship was a successor in design of the famous *Deutschlands*, the first of which, launched in 1910, was wrecked the same year, while the second, launched in 1911, was broken in two by collision with its own shed. The *Schwaben*, under construction at the time of this accident, was a somewhat smaller airship, displacing 634,500 cubic feet, as compared with the *Deutschlands*' 667,560. It was 462 feet long, 46 feet beam, and had 17 gas cells. It developed a speed of almost 43 miles an hour on its trial trips over a measured course. For this airship satisfactory 6-cylinder motors were developed with 165-horsepower, so that even on trips as long as 700 miles they operated without trouble. The *Schwaben* had a conical bow, and great care was taken in stretching the covering over the frame, so that it appeared absolutely smooth and solid. The rudders were improved so that it was possible completely to turn the large airship within a circle of 1600 feet diameter. Improvements in the design of the propellers secured greater efficiency, and the various means of control and handling were improved. The passenger-carrying facilities—notably the corrugated aluminum cabin—were improved with an idea to maximum comfort, and the arrangements for docking and landing were developed in the interest of increased safety to both airship and passengers.

Anchorage facilities, where there were no sheds, were provided for the large military and other dirigibles near almost every German city, so that with four cables instead of one a much greater measure of safety was insured. Tickets for sight-seeing trips were sold at \$50 each per person and in a series of eighty-one ascents, which included nine long voyages, 1675 passengers were carried, including six German princes in one of the November trips. The aggregate distance during the season was 10,811 kilometers.

There was exhibited during the year a tendency to develop miniature dirigible balloons that were cheaper and handier than the Zeppelins and the Parsevals. The Villehad-Forsmann dirigible was of 800 cubic meters capacity, yet it weighed only about 1000 pounds. It was of the non-rigid type with a single ballonnet and had a 24-horsepower engine direct coupled to the propeller. Its speed was up to twenty-five miles an hour, consequently its usefulness was limited to light breezes.

In France successful work was done with the dirigible. The *Capitaine Maréchal*, a semi-rigid type of dirigible, made successful trial flights on March 24 and was used successfully in September in connection with the French army manoeuvres about Châlons. Two airships of the non-rigid type, the *Adjudant Vincenot* and the *Adjudant Reau*, made notable flights during the year, the former remaining in the air on one occasion thirteen hours and forty minutes and maintaining wireless communication with Verdun and Paris. The former, in addition to making an altitude record of 6453 feet on June 19, a little later, July 8, made a trip of 410 miles

in a closed circuit in sixteen hours, fifty minutes, with eight passengers. On September 19 the *Adjudant Reau* made a trip of 573 miles in twenty-one hours, 20 minutes, carrying eight passengers and two tons of supplies, a record for distance and duration. To these three airships at the end of the year was added the *Lieutenant Sells de Beauchamp*, the four names being those of the officers who perished on the ill-fated *Républicque*. The *Beauchamp*, as do the others, follows the Lebaudy type with single short car, but has the vertical stabilizing fin at the extreme stern suppressed and replaced by fixed surfaces which form part of the vertical rudders. All rudder surfaces were doubled, as was the tendency of modern airships of very large size, which meant a saving of weight, and the horizontal rudders were placed amidships where they acted more as aeroplanes, lifting or depressing the ship while maintaining an even keel. There were two air ballonets, and the blowers were mounted on the frame above the car, being driven by a long transmission. The frame is long and deep, well trussed underneath the car so that while the airship possesses great strength yet there is considerable air resistance.

The development of Lebaudy airships for military purposes was going on vigorously in France, and, as in Germany, they figured in the manoeuvres of the year. European military aeronauts were considering the offensive possibilities of dropping one-ounce bullets from great heights. These bullets would serve at the beginning of a trip as ballast and a considerable weight could be transported.

The latest military dirigible of the year was the German *L. Z. 9*, which was launched in October. It was a large airship with three motors which propel the balloon at a speed of forty-eight miles an hour.

The French Military Aeronautical division was increasing its facilities for dirigible balloons. In addition to the hangars at Issy and Moissons, the only balloon sheds over 400 feet in length, new buildings of this length but capable of being increased in size were being added at Verdun, Belfort, Epinal, and Toul, and new sheds were planned for Mézières, Montaigne, camp of Châlons, and Langres. Each will be designed to accommodate two large dirigibles. There were also in operation a number of factories for the generation of hydrogen, and a plant with a capacity of 360,000 cubic feet a day was planned for Châlons.

DISASTERS TO GERMAN DIRIGIBLES. Notwithstanding the great progress Germany had made with military dirigibles, there was to be recorded during the year a series of disasters to six great airships. On March 16, the *Parseval VI* met with a serious accident in which its envelope was destroyed, and both the *Ersatz-Deutschland*, a new Zeppelin airship, and the *Parseval II* were wrecked in the month of May. On June 3 the *Ruthenberg*, an airship of the Siemens type, was wrecked on its trial trip, and on the 26th of the same month the *Parseval V* was seriously damaged by fire. The military dirigible *M3* also had its envelope destroyed by fire on September 13 after it had made some successful trial trips. Notwithstanding these misfortunes there were three German airships of the semi-rigid type able to take part in the autumn manoeuvres.

WRECK OF BRITISH DIRIGIBLE "MAYFLY." The first non-German rigid dirigible met with

a disastrous accident upon leaving its shed September 24 a few months after its completion. It had been building for over two years at Barrow-in-Furness, by Vickers, Ltd., and was designed to embody the best features of Continental construction. It was the largest dirigible constructed, having a gas capacity of 700,000 cubic feet. It was over 500 feet in length, forty-eight feet in diameter, and had a lifting capacity of twenty-one tons. It was driven by two Wolseley engines each of 200-horsepower. The airship was designed for a capacity of twenty-two passengers and crews, and cost the British government over \$200,000 at the time of its completion and launching on May 22. The rigid framework contains seventeen independent gas chambers, which together formed a cylinder with tapering ends. The accident which destroyed the *Mayfly* was caused by the failure of the central part of the frame, and deflation of a single compartment due to an accident caused by leaving the shed in a cross wind. Previously, on May 22, the British *Leboudy* had been wrecked at Farnborough, and while four other airships were carried on the British military strength at the end of the year, two of these were out of service and dismantled. At that time the British war office was more actively concerned with the consideration of aeroplanes than with the future building of airships.

PROPOSED TRANSATLANTIC EXPEDITIONS. In no way daunted by the destruction and loss of the airship *America* in 1910, Melvin Vaniman, with the coöperation of F. A. Seiberling, of the Goodyear Tire and Rubber Co., of Akron, Ohio, constructed during 1911 for a transatlantic expedition a new dirigible balloon, named the *Akron*, based essentially on the plans of the *America*. It was 258 feet in length, with a diameter of forty-seven feet, and carried a car considerably longer than that of its predecessor. It had a body frame and a steel tank, having a capacity for five tons of gasoline, over which on a platform there were three engines. The forward engine of 100-horsepower drives propellers rotating in a vertical plane, while engines of 100- and 80-horsepower, respectively, drive dirigible propellers whose plane of rotation may be varied to any desired angle. Normally, the forward engines only were to be used and were estimated to give a speed of about thirty miles per hour. Sufficient gasoline was to be carried to last for about one week. A novelty in the *Akron* was the use of water ballast and stabilizing places, fore and aft. It was planned to maintain the airship at a height of between 200 and 1000 feet, and, with the lightening of the craft by the consumption of gasoline and provisions, it was anticipated that toward the end of the voyage it might rise to greater heights. Sufficient fuel was to be taken to last about one week, and every care was manifested in building the machine to avoid the weaknesses which developed in the *America*. The equilibrator which was used on that airship was to be replaced by the self-filling water ballast tanks, as Mr. Vaniman was convinced that fundamentally this idea was of considerable merit. Towards the end of the year everything was in readiness for the initial trip, but beyond taking the airship out of its hangar at Atlantic City and making a brief trial trip on November 4, no voyage was undertaken.

THE "SUCHARD." In Germany the airship *Suchard* was also building for a transatlantic

trip. This was a dirigible balloon 250 feet in length, with a diameter of fifty feet in the centre. It was built for a transatlantic expedition planned by Dr. Paul F. Gans, and was christened at Kiel, Germany, February 15, 1911, by Princess Henry of Prussia. Dr. Gans proposed to start from Teneriffe, Canary Islands, by flying with the trade winds from the northeast and reach the West Indies, ending his flight at Barbados with the possibility of continuing it to the coast of Florida if conditions were favorable. This plan was based largely on a study of meteorological conditions, and was radically different from those of Wellman and Verman. Dr. Gans visited the United States late in the year to interest naval officers and others in his proposed expedition, which he thought could be made ready by March, 1912. The airship was fitted with two motors of 110-horsepower, designed to make a speed of twenty miles an hour, in addition to the velocity of the trade wind. At night the power was to be shut down, and the balloon was to be driven with the favorable wind. To keep the big, cigar-shaped gas envelope fully distended there were provided three air ballonets into which air could be pumped as required. The estimated duration of the trip was five days. The air pump was worked by a small motor which, in addition, operated winches for the cable to which the buckets used for dipping up sea-water ballast were attached. The general fittings and equipment of the *Suchard* were in the main similar to those of the *Akron*, the great difference in the plan being the use of favorable meteorological conditions as an important feature.

AEROSTATION

INTERNATIONAL BALLOON RACE—BENNETT CUP SUMMARY. The Bennett Cup competition for spherical balloons in 1911 did not develop any new records, or mark anything unusual, except general enthusiasm in this field of aeronautics. The race was started from Kansas City, Mo., on October 5, 1911, six contestants representing Germany, France and the United States, and the order in which they finished was as follows:

Berlin II. (Germany)—Lieut. Hans Gericke, pilot; S. O. Duncker, aide; landed at Holcombe, Wis., distance 471 miles. Time 12 hours, 28 minutes, 20 seconds.

Buckeye (United States)—Lieut. F. P. Lahm, pilot; J. H. Wade, Jr., aide; landed at Millston, Wis., distance 408 miles. Time 8 hours, 47 minutes, 30 seconds.

Berlin I. (Germany)—Lieut. Leopold Vogt, pilot; Lieut. M. Schoeller, aide; landed at Austin, Minn., distance 350 miles. Time 16 hours, 16 minutes.

Million Population Club (United States)—John Berry, pilot; Paul McCullough, aide; landed at Mason City, Iowa, distance 293 miles. Time 23 hours, 2 minutes, 30 seconds.

America II. (United States)—William F. Assman, pilot; J. C. Hulbert, aide; landed at Emmetsburg, Iowa, distance 275 miles. Time 7 hours, 46 minutes, 30 seconds.

Candor III. (France)—Emile Dubonnet, pilot; Pierre Dupont, aide; landed at Mingo, Iowa, distance 200 miles. Time 27 hours, 22 minutes, 30 seconds.

At the same time the International Balloon Race was held at Kansas City, the race for the Lahm Cup was started with five competitors.

This competition was won by the balloon *Kansas City II.*, Captain Honeywell, pilot; John Watt, aide. A landing was made on the following day at Kennen, Wis., after a trip of 460 miles in fifteen hours and two minutes.

The National Balloon Race was held at Kansas City on July 10, and was won by *St. Louis IV.*, Lieut. F. P. Lahm, United States army, pilot, who with Lieut. J. F. Hart made a trip of 480 miles in twenty-two hours and twenty-six minutes, landing at La Paz, Neb., the following day. Six other competitors participated in the race. An intercollegiate balloon race on June 3, with competitors from the University of Pennsylvania, Dartmouth College and Williams College, was won by the balloon *Pennsylvania*, which made a trip of 115 miles from North Adams, Mass., to West Peabody, Mass., in seven hours and two minutes.

All things considered, ballooning in the United States was not as popular in 1911 as in 1910, as but 116 trips were recorded against 142 ascents in the previous year. In addition to the pilots, 233 passengers were carried aloft. An interesting feature of the year was the successful use of treated natural gas at the big races at Kansas City, with considerable saving in expense over hydrogen gas. The natural gas was heated by passing it through the generator of a water-gas plant. In passing through the body of hot coke the natural gas was partially decomposed and free hydrogen was liberated. This then went through the same treatment as ordinary water gas, and the machine used was found to have a capacity of 50,000 cubic feet an hour.

LEGISLATION. A contribution to the solution of the legal problems brought up by aeronautical progress was the passage by the British Parliament on June 1 of the Aerial Navigation bill, which conferred on the Home Office the power of restricting aviators from flying over areas where the general public would be likely to be placed in danger by such flight. Already at the university boat race on April 1, six aeroplanes had flown over the Thames course, and this legislation had particular reference to the crowds collected for the coronation. In the United States several such flights were made by aviators over ball fields and other places where throngs were collected, and while they did not lead to legislation, yet the practice was universally condemned.

Towards the close of the year a ministerial decree regulating aerial navigation in France was countersigned by the various ministers and approved by President Fallières in the form of a charter, which to become a law as was desired must be passed by the French Chamber and Senate. The decree provided that no steerable balloon or aeroplane would be permitted to navigate over French territory unless with a navigation certificate obtained from the government, after the inspection and tests of the airship and the issue of a proper number. Restrictions were placed on the liberty of aerial navigation, and airships were prohibited from landing in towns and villages, except on such stopping places as were to be specially designated. The passing of airships over interdicted territory without special authorization was forbidden, as well as the transport of either pigeons, explosives, arms, or ammunition. The transport and use of photographic apparatus was forbidden without a special permit, as well as the use of either wireless telephone or telegraph instruments.

The pilot of an airship must possess a proper certificate, and must keep a log book in which essential details of passengers, trips, accidents, etc., must be inscribed. Rules were also provided for airships going over foreign countries, and for the display of lights by dirigible balloons while navigating between sunset and sunrise. Aeroplanes must carry a signal light showing a red light to the left and a green light to the right. The navigation of foreign military airships over French territory was prohibited. The French government airships were freed from various restrictions in the decree. The control of exhibition flights and the omission of aerodromes from certain of the restrictions imposed were also provided for. Certain rules of the road were promulgated, and it was provided that an aeroplane meeting a dirigible balloon at about the same altitude must alter its course. In this proposed legislation the term "airship" applies to both dirigible balloons and aeroplanes. The decree and charter were considered of unusual interest as marking the beginning of legislation which, sooner or later, must be enacted in all countries. In fact, certain bills had been framed for that purpose in the United States.

FATALITIES OF 1911. The death roll of the year numbered over a hundred fatal accidents. Many of the aviators perishing were among the most proficient and promising of the pilots and inventors. This was an increase over previous years, but the more extensive use of the aeroplane must be taken into consideration, and the fact that men and women of more ordinary gifts were entering a field after brief training which but a few years previously was occupied solely by those well qualified in physique, temperament, and training. There were a number of fatalities due to recklessness at public exhibitions, which in general was condemned by the more enlightened public and by the majority of aviators, and there were also deaths due to the breaking or failure of machines, but this last feature was hardly so conspicuous as in the preceding year, and it promised to decrease with the development of the art. The number of deaths due to explosions of gasoline and burning of the planes either in the air or upon reaching the ground was distressingly large. It must be considered that by 1911 flights were being made in strong winds instead of the calm days previously utilized. Furthermore, increased speeds were the order, and this, while increasing safety in the actual flight, made a greater risk of accident when landing. Estimates by Col. Bouttiaux of the French army and M. Sec, based on the distance flown per fatal accident indicated that in 1911 nearly 5000 miles of flight were represented by each fatality, while in 1910 the corresponding number was 3500 miles.

The more notable fatal accidents of the year are listed below:

Jan. 9. Edouard Roussijan, Belgrade, Servia. Lost propeller.

February 6. Lieut. Stein, Doeberitz, Germany. Fell in Wright biplane from height of 65 feet.

Feb. 9. Jules Noël, Douai, France. Collapse of wings of new monoplane.

Feb. 9. M. Delatorre, Douai, France. Fell with above.

March 8. Arturo Villati, Madrid, Spain.

March 20. Paul Keyser, Crefeld, Prussia.

March 28. M. Cei, Paris, France. Caudron biplane. Motor failure.

April 14. Lieut. Byasson, Chevreuse, France. Monoplane capsized in air.

April 17. Capt. E. Carren, Versailles, France. Broken plane in cross-country flight. Fall.

April 20. Louis Liete, Châlons, France.

April 25. William G. Purves, Baton Rouge, La. Fell in Gates biplane on March 5.

May 1. Mattevitch brothers, Sebastopol, Russia.

May 4. M. Cacheux, Kiewitt, Belgium.

May 6. René Vallon, Shanghai, China. Exhibition flight in Sommer biplane.

May 10. Lieut. George E. M. Kelly, U. S. A., Fort Sam Houston, Texas. Lost control. Curtiss biplane.

May 11. Hans Bockemüller, Johannesthal, Germany. Paulhan monoplane. Collision with building in a mist.

May 17. Addison V. Hartle, Los Angeles, Cal. Biplane of own design. Failure due to detachment of ailerons.

May 18. Lieut. Paul Depuis, Rheims, France. R. E. P. monoplane, capsized and took fire on reaching ground.

May 18. Pierre Marie Bournique, Rheims, France. Passenger with above.

May 21. Maurice Berteaux, Minister of War, Issy-le-Molineaux, France.

May 23. C. Laemmlin, Strassburg, Germany. Collision with tree.

May 25. George Benson, Hendon, England. Valkyrie monoplane. Lost control.

May 27. M. Charsky, St. Petersburg, Russia.

May 27. M. Smith, St. Petersburg, Russia. Sommer biplane.

May 27. Edward Farrell, Lansing, Mich.

May 28. Ciro Cirri, Voghera, Italy. Blériot monoplane. Caught fire in air.

June 3. S. Quarez, São Paulo, Brazil.

June 5. Marcel Pennot, Havana, Cuba. Bad landing.

June 6. Lieutenant Brague. Lost at sea on a flight to Corsica.

June 8. Sig. Marra, Rome, Italy.

June 9. George Schendil, Johannsburg, Germany. Lost control in high wind and fell 6000 feet.

June 9. Herr Voss, Johannsburg, Germany. Mechanic with above.

June 9. Vincenz Weissenbach, Weiner-Neustadt, Austria. Fell in monoplane of own design.

June 18. Capt. Princetau, Paris, France. Gasoline explosion; burned to death.

June 18. U. Le Martin, Paris, France. Broken steering gear. Blériot monoplane.

June 18. M. Landron, Paris, France. Gasoline explosion. De Pishoff monoplane.

June 26. George Blondell, North Sea.

June 26. Leon Corbin, North Sea.

June 27. Richard Miller, Wesser, Idaho.

June 29. Lieut. Trochon, Châlons, France. Farman biplane. Bad control.

June 30. Lemar, Coshocton, Ohio.

July 6. Charles Schultz, Phillips, Okla.

July 13. Daniel A. Kreamer, Chicago, Ill. Lost control.

July 14. Edouard Paillette, Algiers. Capsized in wind gust.

July 21. Mme. Denise Moore, Etampes, France. Fall from capsized biplane.

July 23. H. Joly, Juvisy-sur-Orge, France. Fall from Voisin biplane. Lost control.

July 25. M. Shimansky, St. Petersburg, Russia. Passenger; fell from capsized biplane.

July 26. Harry Darnell, Plainfield, Ill. Lost control of machine and drowned in Lake Michigan.

Aug. 2. Gerald Napier, Brooklands, England. Bristol biplane. Caught by gust of wind.

Aug. 15. William R. Badger, Chicago, Ill. Collapse of planes. Baldwin biplane.

Aug. 15. St. Croix Johnstone, Chicago, Ill. Lost control of machine and drowned in Lake Michigan. Moissant monoplane.

Aug. 18. Lieut. Theodore Ridge, Aldershot, England, British army Canard biplane.

Aug. 20. Frank Cranford, Marion, Ill. Fall from parachute.

Aug. 29. Lieut. Zolotnehin, St. Petersburg, Russia.

Sept. 1. John J. Frisbie, Norton, Kan. Machine turned over in a gusty wind; machine was crippled before start.

Sept. 2. H. C. Browne, Charlotte, N. C.

Sept. 2. Capt. de Camine, Nangis, France. R. E. P. monoplane. Fall due to breaking of wing.

Sept. 2. Lieut. de Grailly, Rigny, France. R. E. P. monoplane. Breaking of wing and fire.

Sept. 2. M. Marron, Chartres, France. Aeroplane caught fire. Savary biplane.

Sept. 3. M. Leforrestier, Huelva, Spain. Fall due to fire; machine of own design.

Sept. 7. Lieut. Newman, Mühlhausen, Germany. Aeroplane caught fire in cross country flight. Fall of 60 feet.

Sept. 7. M. Lecomte, Mühlhausen, Germany. Aeroplane caught fire. Passenger with Newman.

Sept. 7. Paul Senge, Karlsruhe, Germany. Fall.

Sept. 7. Carlos Tenaud, Lima, Peru. Injured in fall previous February.

Sept. 9. Raimund Eyring, Esslingen, Germany. Collision with flagpole.

Sept. 12. Lieut. Chotard, Villecoublay, France. Fall of 300 feet.

Sept. 16. Edouard Nieuport, Verdun, France. Caught in wind gust and was injured on hard landing.

Sept. 17. Lieut. R. A. Cammel, Hendon, England. Expert pilot; fell on first flight with Valkyrie monoplane.

Sept. 19. Louis Rosenbaum, De Witt, Iowa. Killed by fall of 600 feet.

Sept. 19. Edward Berlinger, Rockville, Conn. Fall from parachute.

Sept. 22. Tony Castellane, Mansfield, Pa. Fall of 500 feet.

Sept. 22. Frank H. Miller, Dayton, Ohio. Burned to death in biplane.

Sept. 25. Charles B. Clarke, Nassau, L. I. Fall. Inexperienced use of Queen monoplane.

Sept. 25. Ray J. Raymond, St. Louis, Mo.

Sept. 29. Capt. Engelhardt, Berlin, Germany. Killed by fall. First pilot in Germany taught by Wright brothers.

Oct. 2. Cromwell Dixon, Spokane, Wash. Fell as result of too sharp a turn. Curtiss biplane.

Oct. 5. Capt. John Broder, Tifton, Ga.

Oct. 11. James Kinny, Joplin, Mo. Struck by biplane.

Oct. 12. M. Horta, Charlesville, France.

Oct. 12. R. Level, Rheims, France. Fall of 250 feet in military trials. Savary biplane.

Oct. 14. Hans Schmidt, Bern, Switzerland. Burned to death in mid-air.

Oct. 19. Eugene Ely, Macon, Ga. Lost con-

trol of machine while making a dip. Curtiss biplane without front rudder.

Oct. 21. Herr Tachs, Hamburg, Germany. Fall.

Oct. 27. Jean Desparmet, Rheims, France. Fall of 600 feet. Blériot monoplane.

Oct. 31. Prof. John J. Montgomery, San José, Cal. Fell to death in a glider of his own construction.

Nov. 15. Samuel Heiler, Perkins, Okla.

Nov. 15. Herr Pletchker, Berlin, Germany. Fall of 150 feet. Albatross monoplane.

Nov. 25. Baron Freitag von Loringhoven. Berlin, Germany.

Dec. 2. Herr Reeb, Munich, Germany. Fall during cross-country flight.

Dec. 2. Tod Schriener, Ponce, Porto Rico. Fall of 200 feet. Baldwin biplane.

Dec. 6. Hubert Oxley, Scarborough, England. Fall.

Dec. 6. Robert Weiss, Scarborough, England. With above.

Dec. 13. Lieut. Charikos Lantheaume, Medun, France. Fall of 1500 feet.

AEROPLANES. See **AERONAUTICS**; and **NAVAL PROGRESS**, paragraphs *Naval Aeronautics*, *Guns and Gunnery*, *Torpedoes*.

AFGHANISTAN. A monarchy in central Asia. Area, about 225,000 square miles; population, estimated at 5,000,000. The capital is Kabul, with about 70,000 inhabitants; Herat has 45,000; Kandahar, 35,000. Agriculture occupies the majority of the population, and wheat, barley, lentils, rice, millet, corn, and pulse are grown. Fruits abound, and quantities are preserved for export. Sheep and transport animals are raised. Copper is found, as well as lead, iron, gems, and gold. The principal manufactures are silk, woolens, haircloth, and carpets. Trade (1910) with India, £845,465 imports and £696,088 exports; with Russia, 400,000 and 4,000,000 roubles. The revenue, which is not accurately calculable, consists largely of payments in kind. The Sind-Pishin railway terminates at Chaman, on the frontier, 65 miles from Kandahar. Foreign relations are sustained only with the British-Indian government; commercial, with India and Russia. The ameer (1911, Habib Ullah Khan) receives a subsidy of Rs. 180,000 from the Indian government; he is an absolute despot, and the provinces are administered by nobles under a sort of feudalism. A native British agent (1911, Malik Talib Mehdi Khan) resides at Kabul.

ARMY. A regular army is maintained by conscription and is under the command of the ameer's brother, Sardar Nasrullah Khan, who was appointed commander-in-chief in 1903. While service is obligatory, only about one man in eight is called upon to serve, and as a result the army in 1911 comprised about 27,000 infantry and 7000 cavalry, in addition to a strong force of artillery which were armed with guns of modern European pattern. In addition, the irregular troops comprise some 25,000 mounted men, and a smaller force of infantry which are either the retainers of various tribal chiefs or are organized as auxiliary to the regular infantry. The Afghan army was organized and trained on a modern European basis, and the artillery, particularly as regards equipment and personnel, was considered highly efficient. Official ordnance works and arsenals under European superintendents were maintained at Kabul. The equipment of arms available was sufficient for

an army of 100,000, but the force actually in service was estimated at little more than one-half this amount.

AFRICA. See articles on the various countries; also **EXPLORATION**; and **RAILWAYS**, **AFRICAN**.

AFRICA, MAPS OF. See **EXPLORATION**.

AFRICAN EXPLORATION. See **EXPLORATION**.

AFRICAN METHODIST EPISCOPAL CHURCH. See **COLORED METHODISTS**.

AFRICAN METHODIST EPISCOPAL UNION CHURCH. See **COLORED METHODISTS**.

AGADIR. See **MOROCCO**, *History*.

AGRICULTURAL BANK. See **PHILIPPINE ISLANDS**.

AGRICULTURAL CONGRESS, INTERNATIONAL. See **AGRICULTURE**.

AGRICULTURAL EDUCATION. Since 1907 the facilities for teaching agriculture and the number of students of this subject have increased rapidly. In foreign countries agricultural colleges or agricultural schools have been established in Australia, Canada, China, England, Finland, France, India, and Japan. In the United States the agricultural colleges have more students, larger incomes, and have added about \$20,000,000 to their permanent endowment and equipment. The institutions offering secondary courses in agriculture have probably doubled in number. In 1908 there were 40 independent agricultural schools supported wholly or in part by State funds, now there are 77 of these schools; then there were no State-aided courses in agriculture in public high schools, now there are 251. In all, about 2000 public and private high schools now report having students in agriculture. The facilities for training teachers of agriculture have also increased. In 1908 there were 156 normal schools teaching agriculture; now there are about 220 institutions giving such training, including a large percentage of the State agricultural colleges.

In Argentina the National Agronomic and Veterinary Institute was united with the University of Buenos Ayres at La Plata. The first educational train to be run in Great Britain was a poultry demonstration train, fitted up with improved poultry appliances and other illustrative material, which was run for eight days over the railroads in Wales. A farm school was opened at Kingston, Jamaica, to give boys about fifteen years of age three years' training in tropical agriculture.

The legislature of British Columbia set aside 170 acres at Point Grey, a suburb of Vancouver, as the site for a provincial university, and granted two million acres of public lands for its endowment. Plans have been made for about thirty buildings, including an important group for a college of agriculture, with associated schools of forestry, home economics, and veterinary science.

In Salvador an agricultural school was established in the Episcopal Palace, at Sensuntepeque; and in Mexico one of the functions of the newly constituted agricultural boards will be to establish agricultural schools.

EDUCATIONAL CONVENTIONS. A new national association of agricultural educators known as the American Association for the Advancement of Agricultural Teaching was formed in Chicago, April 10, 1911, and held its second meeting at Columbus, Ohio, November 14. Many other associations gave prominent place in their pro-

grammes to agricultural education. Among the more important of these associations were the following: The Association of American Agricultural Colleges and Experiment Stations, the National Education Association, the Southern Educational Association, the Conference for Education in the South, the Farmers' National Congress, the National Dairy Show, the International Live Stock Exposition and the National Corn Exposition. State associations of agricultural educators held meetings in California, Illinois, Michigan, Minnesota, Nebraska, Ohio, Wisconsin, and other States.

UNITED STATES OFFICE OF EXPERIMENT STATIONS. This office continued to represent the United States Department of Agriculture in its relations with agricultural colleges and schools. It compiled and published the official statistics and the annual organization lists of the State agricultural colleges and experiment stations, annual reports of progress in agricultural education and farmers' institutes, and a monthly chapter on agricultural education in the *Experiment Station Record*. In addition to these regular current publications the office issued the following educational publications: Bulletins—Legislation Relating to Farmers' Institutes in the United States and on County Schools of Agriculture in Wisconsin; Farmers' Bulletin on Forestry in Nature Study; circulars—A Secondary Course in Animal Production, The American System of Agricultural Education, Agricultural Fair Associations and their Utilization in Agricultural Education and Improvement; Year Book separate—Community Work in the Rural High School.

UNITED STATES BUREAU OF EDUCATION. Statistics of the land-grant colleges were compiled and published, a specialist in agricultural education was appointed, and studies of the work of agricultural colleges and schools begun. Among the publications of the bureau was a bulletin on Opportunities for Graduate Study in Agriculture in the United States.

GRADUATE SCHOOL OF AGRICULTURE. Announcement was made of the selection of Dr. A. C. True, of the United States Office of Experiment Stations, as dean of the fifth session of the Graduate School of Agriculture, to be held under the auspices of the Association of American Agricultural Colleges and Experiment Stations at the Michigan Agricultural College, East Lansing, Mich., in July, 1912.

THE AGRICULTURAL COLLEGES. A prosperous year was enjoyed by the agricultural colleges and nearly all of them opened the school year 1911 with largely increased enrollment in regular four-year courses. Among the new buildings completed during the year were a \$200,000 agricultural building for the college of agriculture of the University of California, dairy buildings at the Delaware, New Hampshire, South Dakota, and Wisconsin colleges, a poultry hospital at the Rhode Island College, barns, greenhouses, and a forest-products building at the University of Wisconsin, and a women's building and a large boys' dormitory at the Oklahoma college.

The appropriations made by the State legislatures for the support of the agricultural colleges during the 1911-12 biennium, include some of the most liberal provisions ever made for the maintenance and improvement of educational institutions. The University of Illinois received \$3,600,000, of which \$952,300 was for the agricultural college and experiment station. The

Kansas college and station received \$985,000; the University of Minnesota, \$1,283,900, including \$399,700 for the school of agriculture at University Farm, and \$89,200 for the school of agriculture at Crookston; the Montana college and station, \$274,295; the Oregon college and station, \$681,500; the Washington college and station, \$485,000, and the Colorado college, \$200,000.

Marked progress was made by the colleges in developing facilities for the training of teachers of agriculture for the elementary and secondary schools. At least forty-six of the agricultural colleges maintained teacher-training courses in agriculture, and these courses varied from summer courses of a few weeks to regular four-year courses, with additional graduate work. Four-year courses for teachers were offered by twenty-two colleges; three-year courses by six institutions; two-year courses by nine institutions; and one-year courses by six of them. Twenty-nine of the colleges provided summer schools of agriculture for teachers, five coöperated with other agencies in the training of teachers, and seven conducted correspondence courses for teachers.

EDUCATIONAL EXTENSION WORK IN AGRICULTURE. In forty-three States there were directors in charge of extension work. In twenty-seven States 109 men gave all their time to extension work and in twenty-nine States 256 men gave part time to this work. Among the largest extension staffs were Iowa seventeen, Kansas sixteen, Ohio twelve, Massachusetts eight, Minnesota seven, and Utah five. The States giving the largest appropriations for extension work were Iowa and New York, \$50,000 each, Indiana \$49,200, Minnesota \$42,000, Ohio and Wisconsin \$40,000 each, Kansas \$35,000, Georgia \$30,000, Massachusetts \$20,000, Illinois \$19,900, and Nebraska \$17,500. When it is remembered that only six years ago there were scarcely a half-dozen institutions in the entire country having organized systems of extension work in agriculture, the present important position it occupies in the field of agricultural education is remarkable.

Farmers' institutes were held in all of the States and Territories excepting Alaska, Hawaii, Nevada, and Porto Rico. There were 5889 institute meetings, comprising 16,741 half-day sessions. The attendance at these meetings was about 2,292,000. The appropriations for this work from all sources was \$432,700.

Movable schools of agriculture were held in fourteen States to the number of 168, averaging about four days each and attended by 48,000 persons.

Twenty-eight States ran seventy-one educational trains over 40,000 miles of railroad and reached 995,000 people. There were also many special institutes, independent institutes, agricultural meetings at fairs and picnics, and other like meetings, which brought the aggregate attendance at institutes of all kinds up to 3,615,000.

SECONDARY AND ELEMENTARY SCHOOLS. The most notable development in agricultural education in the United States in 1911 was in the large number of high schools that added courses in agriculture to their curricula. From 630 secondary schools reporting students in agriculture in 1910 the number increased to about 2000 in 1911. In the case of over 200 high schools receiving for the first time State aid for the teaching of agriculture, the addition of

this course involved the employment of a special teacher of agriculture and the purchase of considerable laboratory apparatus and other special equipment. The following States gave bonuses for high school agriculture for the first time or increased the number of schools receiving bonuses: Kansas, \$250 to each of 100 schools; Maine, to any free high school or incorporated academy a sum equal to two-thirds of the local expenditures for the course, not to exceed \$500 to one school; Massachusetts, to any public high school a sum equal to two-thirds the salary paid to instructors in agriculture; Minnesota, increasing the number of schools receiving \$2500 for courses in agriculture, home economics, and manual training from 10 to 30, and providing a \$1,000 bonus to each of fifty schools maintaining courses in agriculture and either home economics or manual training; North Dakota, \$2500 a year to each of five schools meeting State requirements as to the teaching of agriculture, home economics, and manual training; Texas, \$500 to \$1500 to any high school maintaining an approved course in agriculture, aid to be given not more than twice to the same school; Wisconsin, \$250 to any free high school maintaining an approved course in agriculture.

A new State school of agriculture was established at Randolph, Vt., and four district agricultural schools supported by the State were opened in Arkansas.

The legislature of North Carolina passed a law for a "County Farm-Life School" in each of ten counties in the State. These schools must not be in any city or town of more than 1000 inhabitants nor within two miles of a city of more than 5000. Schools meeting all other State requirements and having local funds for maintenance amounting to \$2500 may receive \$2500 from the State.

The teaching of agriculture in elementary schools was promoted in many ways. Ohio passed a law requiring the teaching of agriculture in all elementary schools and rural high schools. New York and Oregon inaugurated systems of rural school supervision to aid the introduction of this subject. State rural school supervisors in nearly all of the Southern States lent similar aid in that section of the country.

Boys' and girls' agricultural clubs increased rapidly in number and in membership. The boys' corn clubs in the South enrolled over 55,000 members. There were also in that section 1400 members of boys' cotton clubs and 500 members of girls' garden and canning clubs. Twenty winners of State prizes in the corn contests were given free trips to Washington in December. A Mississippi lad who raised 227 1-16 bushels of corn on one acre at a cost of 14 cents per bushel won the sweepstakes prize.

There were also many members of agricultural and home economics clubs in the other States. Massachusetts had 10,000 members of potato clubs. In Oregon there were truck-gardening clubs; in California, garden city clubs, and tree growing clubs; in Texas and Louisiana, hog clubs; in Nebraska, agricultural and home improvement clubs, and so on through a long list of enterprises intended to educate boys and girls and give them experience in rural affairs.

TEXT-BOOKS AND MANUALS. Many text-books and manuals suitable for use in agricultural courses were published. The most important of those issued in 1910 and 1911 are classified below.

RURAL ECONOMICS: L. H. Bailey, *The Coun-*

try Life Movement (1911); J. A. Bexell, *Farm Accounting and Business Methods* (1911); G. Pinchot, *The Fight for Conservation* (1910); T. G. Thomas, *First Aid to Shipping Fruits, Vegetables, Butter, Eggs, and Game for Profit to Market* (1910); C. R. Van Hise, *The Conservation of Natural Resources in the United States* (1910); G. F. Warren and K. C. Livermore, *Laboratory Exercises in Farm Management* (1910).

AGRONOMY: C. W. Burkett, *Farm Crops* (1910); P. B. Crane, *Quack Grass Eradication* (1910); J. F. Duggar, *Southern Field Crops* (1911); P. G. Holden, *Corn Secrets* (1910); C. G. Hopkins, *The Story of the Soil* (1911); C. G. Hopkins, *Soil Fertility and Permanent Agriculture* (1910); C. G. Hopkins and J. H. Pettit, *Soil Fertility Laboratory Manual* (1910); A. A. Houghton, *Practical Silo Construction* (1911); P. McConnell, *The Complete Farmer* (1910); E. E. Miller, *Fertilizing for Profit* (1910); L. H. Pammel, *Weeds of the Farm and Garden* (1911); T. Shaw, *Weeds and How to Eradicate Them* (1911); J. A. Widtsoe, *Dry Farming: A System of Agriculture for Countries under Low Rainfall* (1911).

ANIMAL PRODUCTION AND DAIRYING: G. L. Carlson, *Studies in Horse Breeding* (1910); W. Dietrich, *Swine—Breeding, Feeding, and Management* (1910); W. C. Fair, *The People's Home Stock Book* (1910); E. F. Jarrel, *Veterinary Medicine and Surgery* (1911); R. Jordan, Jr., *The Gait of the American Trotter and Pacer* (1910); A. T. Kinsley, *A Text-book of Veterinary Pathology* (1910); F. R. Marshall, *Breeding Farm Animals* (1911); Laura Rose, *Farm Dairying* (1911); H. E. Ross, *A Dairy Laboratory Guide* (1910); V. Shaw, *The Encyclopedia of the Stable* (1910); S. Sisson, *A Text-book of Veterinary Anatomy* (1910); K. Winslow, *The Prevention and Treatment of Diseases of the Domestic Animals* (1910).

HORTICULTURE: Helen R. Albee, *Hardy Plants for Cottage Gardens* (1910); L. H. Bailey, *Manual of Gardening* (1910); P. T. Barnes, *The Suburban Garden Guide* (1910); J. R. Davis, *Up-to-Date Truck Growing in the South* (1910); Helen R. Ely, *The Practical Flower Garden* (1911); B. H. Favor, *The Fruit Growers' Guide Book* (1911); C. E. Greening, *The Greening Pictorial System of Landscape Gardening* (1910); Harriet L. Keeler, *Our Garden Flowers* (1910); E. Kemp, *Landscape Gardening—How to Lay Out Gardens* (1911); W. Paddock and O. B. Whipple, *Fruit Growing in the Arid Regions* (1910); S. Parsons, *Landscape Gardening Studies* (1910); E. M. Price, *The Walnut* (1910); H. Rawson, *Success in Market Gardening* (1910); F. F. Rockwell, *Home Vegetable Gardening* (1911); Grace Tabor and G. Teall, *The Garden Primer* (1910); Grace Tabor, *The Landscape Gardening Book* (1911); H. H. Thomas, *The Ideal Garden* (1910); F. A. Waugh, *The Landscape Beautiful* (1910); L. Woolverton, *The Canadian Apple Growers' Guide* (1910).

POULTRY: H. Collingwood, *The Business Hen* (1910); edited by J. H. Drevstedt, *The Wyandottes* (1910); A. T. Johnson, *Chickens* (1910); H. R. Lewis, *Poultry Laboratory Guide* (1910); J. E. Rice et al, *Poultry Houses and Fixtures* (1910).

SECONDARY AND ELEMENTARY: G. A. Bricker, *The Teaching of Agriculture in the High School* (1911); Anna Botsford Comstock, *Handbook*

of *Nature Study for Teachers and Parents* (1911); E. Davenport, *Domesticated Animals and Plants* (1910); edited by J. E. Halligan, *Fundamentals of Agriculture* (1911); E. W. Hilgard and W. J. V. Osterhaut, *Agriculture for Schools of the Pacific Slope* (1910); C. H. Robinson, *Agricultural Instruction in the Public Schools of the United States* (1910); C. M. Weed, *Farm Friends and Farm Foes* (1910).

MISCELLANEOUS: J. M. Coulter et al, *A Text-book of Botany.—I, Morphology and Physiology* (1910); R. W. Doane, *Insects and Disease* (1910); E. B. Hart and W. E. Tottingham, *General Agricultural Chemistry* (1910); D. E. Lyon, *How to Keep Bees for Profit* (1910); G. Massee, *Diseases of Cultivated Plants and Trees* (1910); H. N. Ogden, *Rural Hygiene* (1911); C. F. Osborne, *The Family House* (1910); F. L. Stevens and J. G. Hall, *Diseases of Economic Plants* (1910).

AGRICULTURAL EXPERIMENT STATIONS. EXTENSION OF THE WORK. Better financial conditions resulting from increased federal funds under the Adams act of 1900, and other resources, as well as growing interest in progressive agriculture, have continued to strengthen the stations. Special provision for the more practical experiments to meet local conditions is being made on a broader scale. In California the university and station have come into possession of the farm of 5400 acres bequeathed to Mr. M. T. Kearney near Fresno, and valued at \$1,000,000. This will afford unusual facilities for experiments required for the San Joaquin Valley. In Idaho branch stations are conducted at Clagstone, Caldwell, and Gooding. Minnesota has given the station about \$20,000 for field and demonstration work in various lines. This is in addition to \$50,000 for the biennium for extension and demonstration work, including the operation of twenty demonstration farms. North Dakota has five sub-stations and twenty-four demonstration farms. Seven new sub-stations have been located in Texas. The Washington station has appropriations of \$20,000 for extension work and dry farming. The Wisconsin station has twenty-five county and asylum farms under its management. Ohio has provided for county demonstration farms on petition of taxpayers.

In 1910 the stations employed 1403 persons in the work of administration and inquiry, as compared with 1100 in 1907. They published 583 annual reports, bulletins, and circulars, which were supplied to over 952,000 addresses on the regular mailing lists. The correspondence with farmers is enormous and constantly increasing. The value of the additions to station equipment in 1910 aggregated \$938,750.

FEDERAL AND STATE STATIONS. Agricultural experiment stations maintained in whole or in part by federal funds now exist in every State and Territory, including Alaska, Hawaii, Porto Rico, and Guam. There are also stations in the Philippines under the insular government. More than \$1,000,000 has been added to the annual income of the stations within the past three years. The total amount expended for stations maintained under the acts of 1887 (Hatch) and 1906 (Adams) during the fiscal year ended June 30, 1910, was \$3,537,700.25, of which \$1,344,000 was received from the national government. In addition to this, the Office of Experiment Stations had an appropriation of \$349,220, including \$28,000 each for the Alaska, Hawaii, and Porto

Rico stations; \$15,000 for the Guam station, \$10,000 for nutrition investigations; \$75,000 for irrigation investigations; \$81,160 for drainage investigations, and \$10,000 for farmers' institutes and agricultural schools.

In Alabama, Connecticut, Hawaii, Louisiana, Missouri, New Jersey, New York, North Carolina, and Virginia, separate stations are maintained wholly or in part by State funds and in a number of States sub-stations are maintained. Excluding sub-stations the total number of stations in the United States is sixty-two, of which fifty-five receive federal funds.

OFFICE OF EXPERIMENT STATIONS. An annual inspection of the stations is made by the office and much advice and assistance is given them in a great variety of ways. About 350 projects are being conducted by the stations under the Adams act, many of which deal with fundamental problems in agricultural science. The review of the world's literature of agricultural science in the *Experiment Station Record* has been further enlarged. Two volumes of this journal are now issued annually, containing over 7000 abstracts. The 24 volumes thus far issued contain references to 85,829 articles, besides editorials, special articles, and notes. The card index of the literature of the American stations issued by this office now contains about 32,000 cards and is being widely used by students. Copies of this index are deposited in the libraries of the agricultural colleges, experiment stations, and State departments of agriculture. The special investigations in charge of this office, for which its income in 1911 aggregates \$330,000, are in five main lines: (1) Maintenance of experiment stations in Alaska, Hawaii, Porto Rico, and Guam; (2) agricultural education (q. v.); (3) food and nutrition (q. v.); (4) irrigation (q. v.); and (5) drainage (q. v.). See also AGRICULTURAL EDUCATION.

RECENT EXPERIMENTS. The study of problems relating to dry farming has been an important feature of the stations' work in recent years and has included crops, methods of culture, relations of water to plant growth and health, breeding of drouth-resisting varieties, etc.

Irrigation experiments at many places have shown that more healthy and productive plants can be grown by carefully limiting the amounts of water used and applying them at the right time. The Wisconsin Station is distributing pedigreed barleys and oats, improved tobacco seed, and new varieties of plums and apples. The South Dakota station has developed excellent hybrid raspberries, plums, and crosses of the plum with the sand-cherry and the Chinese apricot. The North Dakota station has been especially successful in breeding alfalfa, corn, and winter wheat and rye. A variety of winter wheat and three varieties of oats originated at the Minnesota station have outyielded ordinary varieties by fifteen to twenty-five per cent. Pedigreed strains of corn, oats, wheat, and soy beans developed by the Ohio station have yielded from two to fourteen bushels more per acre than the original stock. The hybrid wheats originated by the Washington station resulted in 1910 in an increase of 1,500,000 bushels in the wheat production of that State. The studies of soil bacteria at Western stations have shown the great importance of bacterial activity in relation to the formation of nitrates in that region and the great desirability of adapting cultural methods to the requirements of beneficial bac-

terial activity. The New Jersey station has worked out a bacteriological method of determining the availability of nitrogenous fertilizers which promises to be of great practical value. The Nebraska station has demonstrated that when corn is above thirty-five cents per bushel and alfalfa not over seven dollars a ton, the old method of fattening cattle by feeding heavily with grain and using little roughage is much less profitable than a moderate use of grain with more roughage. The Tennessee station has worked out a system for growing two crops on the land annually, thus maintaining a steer for every acre.

Several stations have shown that heavy feeding of silage—up to over forty pounds a day—can be followed with advantage in fattening cattle. The Iowa station has designed a silo built of hollow tile, reinforced between courses of blocks, which is proving very efficient and cheaper than concrete when sand and gravel have to be shipped in.

At the Missouri station studies on the dormant periods of plants have shown that hard freezing or severe drouth will force the development of buds and that anything which will delay ripening will cause a prolonged resting period. Late growth due to fertilizing and cultivation has resulted in heavy crops of fruit, whereas frosts destroyed those in orchards which were permitted to mature in a normal manner.

After experiments running fifteen years the New York State station has concluded that commercial fertilizers are of little benefit to young apple orchards growing on soils naturally suited to apple culture, provided the orchards are well tilled and properly supplied with organic matter from stable manure or cover crops.

In the Eastern States the work of the stations continues to indicate the advisability and practicability of growing alfalfa in many sections.

In Alaska the efforts to grow barley and oats at the Rampart station have been uniformly successful and a number of good crosses of varieties of barley have been made. At the Fairbanks station several hundred bushels of potatoes were produced. At the Kodiak Station eighty-two head of Galloway cattle, ten grade cattle, and eighty-nine sheep were successfully wintered on native forage supplemented by a small amount of purchased grain. At Sitka the work with hybrid strawberries has been continued with marked success.

In Hawaii the experiments with Sea Island and Caravonica cotton continue to attract favorable attention and the profitableness of this new agricultural industry has apparently been demonstrated. The Japanese rice imported by the station have been successfully grown. It has been found that pineapples can be grown in Hawaii with less rainfall than was formerly thought necessary, but the lack of drainage and sometimes too much manganese in the soil are the chief hindrances to this crop. Two demonstration farms have been established on Hawaii and one on Kauai. A sub-station has been begun in the Nahiku rubber district in Maui to study problems relating to Ceara rubber, awa (*Piper methysticum*), broom corn, and tobacco.

In Porto Rico some three-year-old trees of the introduced varieties have borne at the rate of 800 pounds merchantable coffee per acre as compared with the island's average of 200 pounds. More than forty varieties of mangoes

have been introduced from various tropical countries.

In Guam experiments have already demonstrated the superior value of Para grass, Guinea grass, and several non-saccharine sorghums. The pigeon pea, jack bean, and peanut are promising well. The Smooth Cayenne pineapple has been introduced from Hawaii. Six Morgan horses, five Ayrshire cattle, four Berkshire hogs, and some poultry have been introduced for experimental purposes. Secretary Wilson has recommended the establishment of a station on Tutuila in the Samoan group, where the copra industry is threatened by the coconut beetle.

In England a station has been established at Burbage, Leicestershire, for applying Mendelian methods of research to the practical breeding problems of agronomy, horticulture, and forestry. In Canada additional experimental farms have been located at Cap Rouge near Quebec and at Ste. Anne de la Pocatière in Kamouraska county, Quebec. In Spain a station has been established at Burgos and œnological station at Aranda de Duero, Felanitx (Balears Province), and Valdepeñas.

Germany now has seventy-two stations, employing 1378 persons and having a total income of about \$1,450,000.

AGRICULTURAL EXPORTS. See AGRICULTURE.

AGRICULTURAL EXTENSION. See AGRICULTURE.

AGRICULTURAL LEGISLATION. FEDERAL LEGISLATION. Aside from the annual appropriation act for the support of the Department of Agriculture, the most important measure enacted by Congress was that popularly known as the Appalachian Forest Reserve act. This act was approved March 1, 1911, after a contest extending over several years. Under its provisions \$200,000 may be expended in cooperation with the States in protecting from fire the forested watersheds of navigable streams irrespective of ownership. It also appropriates \$2,000,000 annually until July 1, 1915, for the purchase of lands located at the headwaters of navigable streams and their subsequent maintenance as national forests. This legislation, although general in its terms, was enacted with special reference to conserving the forests and water supply in the White Mountains and the Southern Appalachian System, and it is expected that operations will for the present be confined largely to these regions. The States chiefly concerned for the most part accepted the provisions of the act during the year.

No other measures of direct agricultural interest were enacted except the Canadian Reciprocity measure (see **TARIFF**), which was rendered ineffective by its failure to receive ratification by Canada, but an unusual number of matters were pending at the close of the year. One of the most important of these contemplated national legislation to keep out new and dangerous insect pests and plant diseases now frequently introduced with imported nursery stock. A number of other bills would provide federal appropriations aggregating over \$12,000,000 per annum to the States for instruction in agriculture, the trades and industries, and home economics in secondary schools and normal schools, for extension work in these subjects by the colleges of agriculture and mechanic arts, for collegiate work in forestry, for research work in home economics, and for branch experiment

stations. There were also being advocated the undertaking by the federal government of the actual construction of public roads and land drainage projects, the amendment of the Food and Drugs act, the oleomargarine laws, and the meat inspection act, the inspection of imported seeds, the establishment of a rural parcels-post system, the leasing of grazing privileges on the public lands, the restriction of speculation in farm products, and many other projects of a special or local nature.

STATE LEGISLATION. The quantity of State legislation pertaining to agriculture was considerable and much of it was of general significance. Control measures of foods, feeding stuffs, fertilizers, seeds, and other agricultural commodities were especially in evidence.

New pure food laws were adopted in Florida, Idaho, Indiana, Iowa, Maine, Montana, Texas, and Wyoming, the action of Montana reducing the States without effective machinery to three—Arkansas, Mississippi, and West Virginia. Many other States amended their laws, some to bring about closer conformity with the federal Food and Drugs act, and others in the direction of greater stringency, as by requiring the net weights of all packages to be declared, and regulating the sale of cold-storage products. Maine provided for the inspection of its canned goods, and Florida forbade the sale of green or otherwise unfit fruit. Laws regulating the sanitary conditions under which food products are produced and sold were strengthened in Idaho, Illinois, Missouri, Nevada, New Hampshire, New Jersey, Ohio, and Utah.

Pennsylvania and California took a prominent part in the good-roads movement, the former authorizing a system of nearly 300 State roads, and the latter a system to cost not to exceed \$18,000,000. Alabama, Colorado, Connecticut, Delaware, Illinois, Kansas, Missouri, Oklahoma, Washington, West Virginia, and Wisconsin, and other States also enacted roads legislation.

Measures were passed to promote the reclamation of swamp lands in at least sixteen States, most of which authorized the establishment of drainage districts for financing and constructing drainage systems. Amendments of varying importance were made by most of the arid States to their irrigation codes.

A comprehensive campaign against the chestnut-bark disease was begun in Pennsylvania with an initial appropriation of \$275,000. Colorado, Kansas, Massachusetts, Pennsylvania, and Vermont established apiary inspection. California, Colorado, Florida, Vermont, and Wisconsin strengthened their laws as to insect pests, California and Florida enacting insecticide and fungicide inspection laws.

Stallion registration was required in six additional States. Indiana authorized the formation of coöperative associations for the insurance of farm animals, and a number of States made appropriations for the distribution of hog cholera serum.

Agricultural education met with general encouragement, with liberal appropriations in most States for instruction, research, and extension work. Ohio made agriculture a required subject for all non-city schools, and Kansas prescribed examination of its teachers upon it. Idaho and North Carolina instituted a system of rural high schools in which agriculture is taught, and Massachusetts, Maine, and North

Dakota extended additional State aid to certain schools offering agricultural instruction. New York appointed a State advisory board to consider the promotion of agricultural education and the advancement of country life.

FOREIGN LEGISLATION. In Great Britain a bill providing more stringent regulations in the sale of fertilizers, feeding-stuffs, and other commodities intended for agricultural purposes was passed by the House of Lords in December, one of its principal provisions being that for seed inspection. A Scottish small-landholders' bill was enacted similar to that in operation in England since 1907, under which county councils may purchase lands for rental in small tracts to homeseekers.

The various governmental agencies engaged in agricultural work in France were brought together November 1, under a department of agriculture, with bureaus of general administration, agricultural instruction and service, waters and forests, horse-breeding, inspection work, and agricultural credit and other coöperative societies. A phytopathological service was established May 1, for the protection of horticultural interests from insect pests and plant diseases. The fertilizer regulations were revised to include a more comprehensive system of inspection, and new standards promulgated for sugars, confectionery, cocoa products, and other foods. A commission reported a plan for the organization of a complete meteorological service.

Denmark has passed an act amending the law as to the trade in butter and foreign agricultural products. The coloring of butter or use of preservatives is forbidden, and the water content of exported butters limited to sixteen per cent.

A law was passed in Turkey in June, 1911, admitting agricultural machinery and implements free of duty, and extending the same concession to commercial fertilizers.

AGRICULTURE. One of the most notable developments agriculturally since 1907 has been the country-life movement and a more intimate study of the conditions surrounding the farmer and his industry. The movement set on foot in 1908 by the appointment of a commission on Country Life by President Roosevelt, has grown in force with each succeeding year. Along with this have gone the agitation for the conservation of national resources, of which the soil has been pronounced the greatest, and a widespread effort to make the average farmer more efficient, in which the railroads, bankers, and other industrial organizations have participated. The increased cost of food products and the problem of the food supply of the future are also subjects which have sprung into prominence.

The International Institute of Agriculture, at Rome, was organized in 1908, and an agricultural bank opened in the Philippines for the aid of farmers. Land expositions are a development of the last three or four years, and are now held annually in several of the large cities. In Great Britain an important measure, known as the Development and Road Improvement Funds acts, was passed in 1909, providing aid for agricultural development along educational and economic lines.

The most important new contribution is the results of the census, giving the figures showing the status of agriculture in 1910.

CENSUS OF AGRICULTURE IN THE UNITED STATES. The preliminary results for agriculture of the Thirteenth Decennial Census were issued in September. These showed that there were in 1910 in continental United States, 6,340,357 farms, as compared with 5,737,372 in 1900, an increase of 10.5 per cent. These represented a total acreage of 873,729,000, of which 477,448,000 acres were improved land, an increase of 15.2 per cent in the latter in the decade. The improved land constituted fifty-five per cent of the total in 1910, and forty-nine per cent in 1900. The size of the average farm was 138 acres in 1910 and 146 in 1900.

The increase in population in the decade was twenty-one per cent, which the number of farms did not keep pace with, the increase being only 10.5 per cent. This is the lowest rate of increase noted since the number of farms was first recorded in 1850. In large areas of the country the number has remained practically stationary. Nor is the low rate of increase compensated by any growth in the size of farms, as shown above. Improved land, however, increased more rapidly than the total farm acreage, showing an advance of 15.2 per cent, but this was only about two-thirds of the growth of population, so that at the best the number of acres under cultivation did not keep pace with the increase in the number of people.

In striking contrast with the above is the enormous rise in the value of farm property. Farm land, exclusive of buildings, which was valued at \$13,058,008,000 in 1900, had more than doubled, being returned in 1910 at \$28,386,770,000. This represents an increased value of \$15,328,762,000 or 117.4 per cent. The average value of farm land per acre increased from \$15.57 in 1900 to \$32.49 in 1910, a gain of 108.7 per cent. This increased value is attributed in part to the advancing prices of agricultural products which have increased the income-producing power of farm lands. Another important factor is the cost which has been involved in improving 62,949,000 acres of what was previously unimproved land. The fact that desirable free land has practically disappeared, and that there has been increased demand for homes in the country and a growing appreciation of the importance of land ownership, has also affected prices. The value of farm buildings likewise showed a large increase—from \$3,556,640,000 in 1900 to \$6,294,737,000 in 1910, or a gain of seventy-seven per cent. The value of the implements and machinery on farms increased from \$749,776,000 in 1900 to \$1,262,022,000 in 1910, or 68.3 per cent.

Of the total number of farms 85.5 per cent. were operated by white farmers and the remaining 14.5 by negro and other non-white farmers. The latter showed an increase of about one per cent, the number in 1910 aggregating nearly a million farms.

Taking the country as a whole, there was relatively little falling off in the farms operated by owners, and less than in the preceding ten years. The total number in 1910 was 3,933,705, or sixty-two per cent, as compared with 3,653,323, or 63.7 per cent, in 1900; whereas the number of tenant farmers was 2,340,254 as against 2,024,964 in 1900. The farms conducted by managers amounted to one per cent. at both censuses.

There has been a relative increase in the number of mortgaged farms, but the increase in the

proportion of mortgaged farms from 1900 to 1910, was less than in the previous decade.

The expenditure for hired labor on farms amounted to \$645,612,000 in 1910, as compared with \$357,302,000 in 1900, an increase of 80.6 per cent. The expenditure for fertilizers more than doubled, being \$53,432,000 in 1900 and \$114,277,000 in 1910.

LIVESTOCK. The aggregate value of all livestock in continental United States, including domestic animals, poultry, and bees, as reported April 15, 1910, was in round numbers \$4,895,000,000. This is an increase of 59.2 per cent. since 1900. These figures do not include livestock in cities and towns. The value of the principal classes of domestic animals on farms was as follows: Horses and colts \$2,076,000,000, cattle \$1,485,000,000, mules and mule colts \$522,000,000, swine \$398,000,000, sheep and lambs \$231,000,000, and poultry \$153,000,000.

In 1900 cattle constituted 48 per cent. of the value of all farm livestock, far exceeding any other class; but in 1910 horses had taken first place, forming 42.4 per cent, with cattle 30.3 per cent, mules 10.7 per cent., and swine 8.1 per cent., while sheep and lambs made up less than 5 per cent. of the total value. The two classes of horses and mules together now constitute over half the total value of livestock on farms and ranges. The total value of horses increased 131.6 per cent. and of mules 166.2 per cent. since 1900.

It is noted that the figures for cattle are not strictly comparable with those for 1900, as the latter census was taken as of June 1, after all the spring calves were born, while the 1910 census, as of April 15, showed a much smaller number of calves. There were 20,580,845 dairy cows and heifers kept for milk in 1910, having an average value of \$34.24, or a total of \$704,612,120. Of the total number of farms 80.9 per cent reported dairy cows as being kept. The number of horses on farms was returned at 19,731,060, the mature animals having an average value of \$112.53. Mules had a considerably higher average value, \$131.54.

For the country as a whole an increase of \$60,000,000 in the value of sheep was shown, but this is not as great as the relative increase for other classes. Sheep were kept on less than 10 per cent. of the farms. Swine showed a gain in total value of 71.6 per cent. and poultry of 78.9 per cent. The latter now has a value of \$153,394,142 for the United States, while bees represent an investment of a little over \$10,000,000, showing practically no change.

The number of sheep of shearing age was about $\frac{1}{2}$ per cent. less in 1910 than in 1900. The wool clip in 1909, however, amounted to 289,419,977 lbs. as compared with 276,567,584 lbs. in 1900. This gain was due to an increase of one-half pound in the average weight per fleece, which was 6.8 lbs. in 1909 and 6.3 lbs. in 1900. The total value of wool produced increased from \$45,670,000 in 1900 to \$65,472,000 in 1909, a gain of 43.4 per cent. By far the most important factor in determining this change was the increase in the price of wool from seventeen cents per pound in 1900, to twenty-three cents in 1910. Nearly half (forty-seven per cent) of the wool was produced in 1909 in the mountain division of the United States, and sixteen per cent. in the east-north central division, the Pacific division being third with nearly twelve per cent. The value of the

fleece showed considerable range in different sections. In the east-north-central division it averaged \$2.11 and in the middle Atlantic \$1.98. The high averages came from a high average weight combined with a high value per pound. In the west-north-central division the value averaged \$1.71, in the mountain division \$1.47, and in the Pacific \$1.35. The lowest averages were in the east-south-central, \$1.05, and west-south-central \$1.07, due chiefly to the low weight per fleece.

RURAL POPULATION. The general trend of population toward the cities is very forcibly brought out by the census report upon urban and rural population. For purposes of discussion, urban population is defined as that residing in cities and other incorporated places of 2500 inhabitants or more, and the remainder as rural. Taking continental United States as a whole, 46.3 per cent. of the population is classed as urban and 53.7 per cent. as rural, while in 1900 rural population constituted 59.5 per cent. and in 1890 63.9 per cent. This shows a very considerable decrease in the proportion of rural population, varying greatly for the different sections of the country. The percentage of increase in population in the last decade was 34.9 in urban and only 11.1 in rural territory. The percentage gain in population was, therefore, three times as great in urban as in rural territory. In seven States—New Hampshire, Vermont, Ohio, Indiana, Illinois, Iowa, and Missouri, there was an actual decrease in rural population, while every State showed an increase in urban residents; and in all but two States—Montana and Wyoming—the urban population increased more rapidly than the rural. The largest percentage gains in rural population occurred in the mountain, Pacific, and west-south-central divisions, in the order named.

The census has discussed in a special report the movement of white and negro population in the Southern States. Contrary to the oft-repeated statement that the negroes are moving to the towns and cities more rapidly than the whites, the census figures show that the reverse is the case. The rate of increase for the urban whites advanced from 27.6 per cent. in 1900 to 46.6 per cent. in 1910, or a difference of nineteen per cent., while the rate for the urban negroes advanced from 23.2 to 30.5 per cent., or a difference of 7.2 per cent. It is shown that in many sections the number of farms operated by whites has materially decreased, while the number of colored tenant farmers has largely increased.

AGRICULTURAL IMPLEMENT MANUFACTURE. For the manufacture of farm implements the census shows 640 establishments in the United States, a slight decrease since 1904. These had \$256,281,000 invested in the business, which was a gain of thirty per cent. and they turned out products in 1909 having a total value of \$146,329,000, a gain of thirty-one per cent. over 1904. These included 5,024,637 implements as compared with 3,892,012 in 1904, or twenty-nine per cent. more. In this list implements of cultivation—plows, harrows, cultivators, etc.—lead with a total of 3,287,649, followed by harvesting implements—mowers, rakes, reapers, harvesters, etc.—1,059,482. A very great increase was noted in steam thrashers, from 7950 in 1904 to 23,586 in 1909, or 197 per cent., while the manufacture of horse

thrashers decreased from 2237 to 822, or sixty-three per cent.

The magnitude of this industry is shown by the report of the International Harvester Company, one of the largest manufacturers. The total sales of farm machinery and allied products during 1910 aggregated \$101,106,358, an increase of sixteen per cent. over the sales of 1909. More than one-third of this product is marketed in foreign countries.

CROP PRODUCTION IN THE UNITED STATES. The climatic conditions of the early part of the growing season of 1911 were adverse to agriculture throughout the country east of the Rocky Mountains, to a degree that exceeds all records. It is stated by the Weather Bureau that probably not in the last half century has the temperature been so continuously and largely above the average over so extensive a region as from early May until into July. Deficient rainfall combined with this continuous heat made the severest test to which the crops of the immense area covered have been subjected during the many years for which there are records. But in spite of this, 1911 was not a lean year and many crops made a better showing in total production than was feared. Most crops, however, fell considerably behind the average production of the preceding five years, hay showing the greatest percentage of deficiency. Cotton was the most conspicuous exception to this rule, being estimated at the close of the year as the largest crop ever grown and one-quarter larger than the five-year average. The sugar-beet crop was also the largest ever grown, and was much above the average of the previous five years, while rice and buckwheat were considerably above.

For the first time in many years the total value of farm products declined from that of the preceding year. The estimate for 1911 is based on the census items and is \$8,417,000,000, or \$277,000,000 under the total for 1910, and considerably less than for 1909. The loss in 1911 is chargeable to the decline in prices of general classes of animal products and animals sold and slaughtered. Dairy cows are the only farm animals for which increase of price is indicated. The farm prices of eggs, wool, butter, and poultry have likewise suffered during the year. In consequence of this decline farm animals and their products are estimated as having produced a value of \$2,913,000,000 in 1911, or \$321,000,000 below the amount for 1910.

On the other hand, the crops were worth more than those of 1910, the estimate of farm value being 5,504,000,000, a gain of \$44,000,000 over 1910. Farm prices of all crops were higher than for 1910, except for cotton, cotton seed, flaxseed, and perhaps rice; and this general fact, notwithstanding that production was low, makes about ten crops of 1911 the most valuable ones of the same kinds that the farms of this country have ever produced.

Corn was far ahead of all other crops in value, having twice the value of the cotton crop and nearly the combined values of the cotton, wheat, and oat crops. The estimated production of 2,531,488,000 bushels has been exceeded in but two years, and is a little under the average for the five preceding years. The farm price is higher than it has been since the records of the Department of Agriculture began in 1866, except in 1883, and this gives the crop a value of \$1,565,258,000, breaking all records. About three-fourths of the world's crop was grown in

the United States, and for the past five years the exports have formed about one-third of the world's exports of corn.

Cotton has declined to a price five cents a pound of lint below that of last year, and the seed likewise. Accordingly the value of the fibre and seed of this record crop is below that of two former crops, being estimated at \$775,000,000. The decline in price has led to a vast scheme of financing in the effort to lessen the loss. The Southern Cotton Congress and the conference of governors of the cotton States have arranged with New York bankers to put up \$50,000,000 in the cotton States to enable planters to hold their crop for a possible rise until January 1, 1913, but in accepting this financial help farmers must agree to reduce their acreage the coming year. No crop grown in this country excites such world-wide interest as cotton, for the reason that the United States' product is about three-fifths of the world's supply, constitutes two-thirds of the world's exports, and has a fibre that has no direct competition in other countries. The fibre makes up about one-half of the value of agricultural exports and more than one-fourth of that of all exports from the United States. During the fiscal year 1911 it reached the unprecedented amount of \$585,000,000, or over \$148,000,000 more than the average for the preceding five years.

Hay, with a production of only 47,444,000 tons, far below the five-year average of 63,500,000, is the third crop in value, owing to an increase in farm price of about \$2.50 over 1910. The value of the crop is placed at a little less than \$700,000,000, which is \$50,000,000 more than the estimated value of the cotton lint, and \$150,000,000 more than that of the wheat crop. These comparisons show for the hay crop a value which is not generally recognized off the farm.

The wheat crop, estimated at 621,338,000 bushels, was five and one-half per cent. below the five-year average in amount, and had a value of about \$550,000,000, a little below the average. The United States produced one-fifth of the world's wheat crop during the past five years, and contributed about one-eighth to the world's exports.

The oat crop was, as usual, fifth in order of value, the relatively low production of 922,298,000 bushels being valued at \$414,663,000, or five per cent. more than the five-year average. About one-fourth of the world's crop is grown in this country.

The potato crop, the early prospect for which was an almost complete failure, amounted to 292,737,000 bushels, an amount twelve per cent. below the five-year average. The farm price, however, increased twenty cents a bushel, with the result that the total value was the highest on record, \$233,778,000, or fourteen per cent. above the five-year average.

Barley was also deficient in production, the 160,000,000 bushels being twelve per cent. below the five-year average, but owing to a high farm price of eighty-five cents a bushel it had a total value of \$139,182,000, much above the record value of 1907.

Tobacco production, estimated at about 900,000,000 pounds, was two per cent. under the five-year average, and its value of \$85,000,000 was 5.3 per cent. under the average. The crop grown in this country during the past five years has comprised thirty-one per cent. of the world's

crop, and supplied other countries with 42.3 per cent. of the world's exports.

The flaxseed crop was seven and one-half per cent. under the five-year average, but owing to a price of \$2.17 its value rose above any previous year, being fifty-three per cent. above the five-year average.

Rye also reached its highest value, although the crop was short of the average by 5.4 per cent. The sugar-beet crop was the largest yet produced and reached a value of over \$24,000,000, an increase of twenty-three and one-half per cent. above the average, and much above the previous highest value. A rise in the price of hops, usually ten to twenty cents a pound, to about thirty-eight cents, gave the crop of fifteen per cent. below the average a value of \$15,500,000, or 140 per cent. more than the five-year average. A little over one-fourth of the world's crop is produced in the United States.

Rice was one of the crops above the five-year average, although the production of a little more than a billion pounds has been twice exceeded; but owing to price its value was ten and one-half per cent. below the average, amounting to \$18,300,000. Buckwheat, which has been on the decline for many years, gave a crop 7.3 per cent. above the five-year average, which has been exceeded only twice since the sixties. The farm price was unusually high, about seventy-two cents a bushel, giving the crop the largest value since the sixties.

The crops of the year compare more favorably with the averages of the previous five years than they do with the single years of highest production. The combined production of cereals was 4,522,000,000 bushels, which is 3.4 per cent. below the five-year average, and the fifth in size.

The census figures showed a remarkable falling off in the wheat acreage during the decade, amounting to 8,328,000 acres or fifteen per cent. This decrease was widespread. In California it amounted to eighty-two per cent.—from 2,688,000 acres in 1899 to 483,000 acres in 1909; in Iowa to 68.8 per cent., Minnesota to fifty per cent., and in Ohio to forty-three per cent. The change means to a large extent a shifting from wheat to livestock farming, and has resulted in some cases from bringing about a condition by continuous culture under which wheat became unprofitable. There was a gain in area in ten States, North Dakota leading with eighty-four per cent., and Kansas with fifty-seven per cent., these two States adding 5,896,000 acres to the wheat area. This reflects in large measure the invasion of the dry farming district by the wheat farmer.

FOREIGN TRADE IN AGRICULTURAL PRODUCTS. The large balance of trade in favor of agricultural exports from the United States, which showed a decline in 1909 and 1910, was maintained in 1911. In the fiscal year 1908 this balance in agricultural products was \$488,000,000, in 1909 it was \$274,000,000, and in 1910 it fell to \$198,000,000, while in 1911 it rose to \$366,644,580 on farm products and \$53,976,340 on forest products. In the latter year the balance in favor of non-agricultural exports was \$156,000,000. The balance in the case of both classes of exports is due largely, if not entirely, to raw cotton.

In 1911 the export of farm products totaled \$1,031,000,000, being exceeded only by 1907. There was a gain in packing-house products exported of \$21,000,000 over 1910, amounting to

\$157,000,000; but grain and grain products continued the decline which began in 1909 and fell to a value of \$124,000,000, a loss of \$91,000,000 in three years. Exports of butter have increased steadily for the past two years until they have doubled in volume and value, while in the same period cheese has increased three times in volume. Tobacco exports continued large, amounting to \$39,000,000, or \$1,000,000 above the previous year. The same is true of fruits, with a value of \$24,000,000 or \$5,000,000 over 1910. The exports of live animals have declined to \$19,000,000, which, however, is \$2,000,000 over 1910.

The imports of agricultural products amounted to \$679,000,000, a decrease of about \$8,000,000. The imported silk fibre was valued at \$75,000,000, coffee \$91,000,000, vegetable fibres \$56,000,000, seeds 30,000,000, fruits \$27,000,000—all with increases over the values of 1910.

Declining from the previous year, the imports of wool in 1911 were valued at \$23,000,000, packing-house products, largely hides and skins, \$84,000,000, sugar and molasses \$98,000,000.

The value of exports of domestic forest products continued to advance and the amount for 1911, \$103,000,000, was the highest yet reached. The exported lumber was valued at \$60,000,000, timber and logs at \$17,000,000, and naval stores at \$25,000,000.

The imports of forest products in 1911 were valued at \$164,000,000, and came within \$15,000,000 of equaling the total of 1910, which holds the highest place. India rubber was imported to the value of \$76,000,000, other gums \$26,000,000, lumber \$21,000,000, wood pulp \$14,000,000, an import that has doubled in value in four years.

WORLD'S PRODUCTION OF CROPS. Climatic conditions of the growing season of 1911 were likewise unfavorable in several of the countries of Europe. Western and north-central Europe suffered during late July and the greater part of August from an almost unprecedented drouth, with unusually high temperature in parts. The affected territory comprised England, France, Italy, Belgium, Netherlands, the Scandinavian countries, Germany, Austria, Hungary, and a part of western Russia. In Russia prolonged drouth in western Siberia and the eastern provinces of European Russia resulted in an almost complete failure of cereal and hay crops. The peasants have been forced to dispose of their cattle and poultry at greatly reduced prices, on account of the high prices of feed. In England, France, Germany, and Austria-Hungary especially, the continued drouth was disastrous to the proper development of the autumn-maturing crops, especially sugar beets, potatoes, roots, hay, and all kinds of forage. The Hungarian, Austrian, and French corn crops were irreparably injured, and hops in Austria and Germany were considerably damaged.

The production of cereal crops for the principal countries was as follows:

The following table, prepared by the Bureau of Statistics of the United States Department of Agriculture, shows the average production of the world crops for the five years 1905 to 1909, together with the average percentage of the total grown in the United States for the same period.

AVERAGE WORLD PRODUCTION AND PROPORTION FROM THE UNITED STATES.

	Average	Percentage of total produced in U. S.,
	1905-1909	1905-1909
Wheat (bushels)....	3,008,000,000	20.7
Corn (bushels).....	3,558,000,000	76.8
Oats (bushels).....	3,695,000,000	24.2
Barley (bushels)....	1,298,000,000	12.4
Rye (bushels).....	1,558,000,000	2.0
Flaxseed (bushels)..	100,000,000	26.3
Potatoes (bushels)..	5,194,000,000	5.3
Sugar (tons).....	14,367,000	5.0
Rice (pounds).....	114,095,000,000	0.4
Cotton (bales).....	19,729,000	59.0
Hops (pounds).....	183,000,000	25.8
Coffee (pounds).....	2,541,000,000	...

The world production of leading textile fibres is given by the United States Census for the year 1909 as follows:

Cotton	8,505,191,000 lbs.
Wool	2,695,622,000 "
Silk	85,048,000 "
Flax	1,872,127,000 "
Hemp	1,453,186,000 "
Jute	2,918,000,000 "

Of the cotton the United States produced 60.6 per cent., of wool 12.2 per cent., of flax 0.2 per cent., and of hemp 0.7 per cent. of the total.

FOREIGN STATISTICS. Recent statistics gathered in Canada show the rapid expansion of its agricultural industry. The area in crops in 1891, was 15,662,811 acres; in 1901 it was 19,763,740 acres, an increase of twenty-six per cent, and in 1910 it was 32,711,062 acres, an increase of sixty-five per cent over 1901. This has been largely in the prairie provinces. The crop area increased in Manitoba from 2,756,106 acres in 1901 to 5,318,989 acres in 1910; the combined area in field crops in Saskatchewan, Assiniboia, and Alberta was 844,013 acres in 1901, while in 1910 it had reached 7,430,560 acres in Saskatchewan and 1,808,719 in Alberta. In 1910, the production of wheat in Saskatchewan was 81,139,000 bushel, of oats, 61,367,000, and of barley 3,598,000 bushel.

In 1891 the product of the creameries, cheese, and condensed milk factories of Canada was valued at \$10,780,000, in 1901 at \$29,731,922, and in 1907 at \$35,457,543. Of the fruit grown in Canada 75 per cent. is produced in Ontario.

A recent survey of statistics for agriculture in Great Britain shows that in the past twenty years, ending in 1910, there has been a decrease of about one and one-half million acres of land under arable cultivation, which is only partially compensated by laying down a million acres in grass, leaving a decrease of fully a half million acres in agriculture. Agricultural returns for Great Britain, collected in June, 1911, showed a further reduction of the cultivated area by over 51,000 acres, arable land having decreased by 20,786 acres and permanent pastures by 30,486 acres.

The total number of agricultural holdings of more than one acre in Great Britain in 1910 was 509,808, which was an increase of 637 over 1909. Notwithstanding, there was a reduction in the farmed area.

Within the last twenty-five years 1795 farms

Countries	Wheat			Rye			Oats			Barley			Corn		
	1910	1911	Bushels	1910	1911	Bushels	1910	1911	Bushels	1910	1911	Bushels	1910	1911	Bushels
United States.....	636,121,000	621,338,000	34,897,000	33,119,000	1,186,341,000	922,298,000	173,832,000	160,240,000	2,886,260,000	2,631,488,000	17,173,200	18,741,118	17,173,200	17,173,200	17,173,200
Canada.....	179,990,000	204,414,000	1,544,755	3,009,000	343,692,425	371,000,000	45,148,300	43,646,000	7,000,000	175,330,000	27,675,000	175,330,000	27,675,000	27,675,000	27,675,000
Mexico.....	10,000,000	70,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Argentina.....	131,010,000	213,000,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chile.....	23,516,000	38,850,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Uruguay.....	9,000,000	10,284,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Austria.....	57,585,900	53,258,500	109,148,900	112,204,500	142,001,000	156,630,000	67,574,600	74,530,000	17,233,000	14,960,000	14,960,000	17,233,000	14,960,000	14,960,000	14,960,000
Hungary, with Croatia and Slavonia.....	194,634,000	194,035,000	59,421,000	64,372,000	80,126,000	96,427,500	66,288,000	76,115,000	187,731,000	137,069,000	137,069,000	187,731,000	137,069,000	137,069,000	137,069,000
Belgium.....	13,000,000	14,718,600	2,100,000	23,108,000	30,000,000	41,417,000	4,000,000	4,602,000	.....	.....	.....	.....	.....	.....	.....
Bulgaria.....	49,126,000	72,408,000	11,733,000	14,780,000	13,193,000	20,277,000	15,743,700	20,375,000	28,360,000	57,924,000	57,924,000	28,360,000	57,924,000	57,924,000	57,924,000
Denmark.....	4,225,000	4,764,500	18,908,000	19,745,000	40,663,000	51,071,500	4,775,000	24,693,000	.....	.....	.....	.....	.....	.....	.....
Finland.....	135,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
France.....	268,364,000	322,375,000	47,937,000	48,156,000	815,183,000	350,818,000	45,790,500	51,032,300	25,690,000	26,772,000	26,772,000	25,690,000	26,772,000	26,772,000	26,772,000
Germany.....	141,884,000	149,370,000	414,140,000	427,775,700	554,386,000	530,764,400	133,246,000	149,290,000	.....	.....	.....	.....	.....	.....	.....
Greece.....	7,000,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Italy.....	153,337,000	193,739,400	5,445,000	5,302,000	28,575,000	41,223,000	9,476,000	10,900,000	97,199,000	93,914,000	93,914,000	97,199,000	93,914,000	93,914,000	93,914,000
Montenegro.....	200,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Netherlands.....	4,324,000	5,687,000	14,829,000	17,326,000	20,369,000	18,543,300	3,380,500	3,670,000	.....	.....	.....	.....	.....	.....	.....
Norway.....	294,000	.....	1,063,000	.....	.....	.....	2,970,700	.....	.....	.....	.....	.....	.....	.....	.....
Portugal.....	6,000,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rumania.....	110,761,000	96,324,200	7,683,000	4,988,000	29,647,000	28,666,000	29,585,000	26,418,000	104,410,000	131,449,000	131,449,000	104,410,000	131,449,000	131,449,000	131,449,000
Russia (Europe).....	699,413,000	509,190,000	867,026,000	762,109,000	1,045,991,000	858,356,000	458,991,000	411,235,000	77,607,000	82,286,000	82,286,000	77,607,000	82,286,000	82,286,000	82,286,000
Russia (Asia).....	76,282,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Servia.....	10,000,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Spain.....	137,448,000	157,733,000	27,619,000	31,562,000	29,018,000	34,048,500	76,260,000	89,939,200	27,388,000	27,172,000	27,172,000	27,388,000	27,172,000	27,172,000	27,172,000
Sweden.....	7,456,000	6,875,000	24,571,000	24,295,000	75,238,000	73,633,000	15,545,000	15,358,000	.....	.....	.....	.....	.....	.....	.....
Switzerland.....	3,417,000	8,631,600	1,970,000	1,801,000	.....	4,944,000	459,000	462,300	.....	.....	.....	.....	.....	.....	.....
Turkey (Europe).....	30,000,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Turkey (Asia).....	35,000,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
United Kingdom.....	60,017,000	64,830,000	2,000,000	.....	193,549,000	194,270,000	67,429,300	60,220,000	.....	.....	.....	.....	.....	.....	.....
British India.....	257,941,000	372,000,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cyprus.....	2,600,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Japanese Empire.....	20,329,000	20,716,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Persia.....	16,000,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Algeria.....	39,374,000	36,104,500	62,500	3,350	13,268,000	11,538,000	48,677,000	47,662,000	512,000	554,000	554,000	512,000	554,000	554,000	554,000
Egypt.....	25,000,000	38,311,700	.....	.....	.....	.....	.....	.....	70,351,000	67,958,000	67,958,000	70,351,000	67,958,000	67,958,000	67,958,000
Sudan.....	500,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tunis.....	5,512,000	8,695,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union of South Africa.....	2,500,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Australia.....	93,263,000	75,880,000	132,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Zealand.....	8,934,000	100,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

of over 300 acres have disappeared in the United Kingdom, 349 of these since 1905. The large farm of several hundred acres is gradually losing its position, and now constitutes little more than three per cent. of the agricultural holdings. During 1910 applications for land under the Small Holdings' act were received from 4003 individuals and seven associations for an aggregate of 70,253 acres, bringing the total number of applicants since the act came into operation up to 30,886 individuals and thirty-four associations, and the total area of land applied for up to 507,377 acres. While the demand is therefore large and considerable progress is being made in providing small holdings in England and Wales, the net increase in the number of small holdings is kept down by the annual transfer of a substantial area of land from agriculture to other purposes. It is officially estimated that in the eighteen years from 1890 to 1908, the reduction in the number of small holdings amounted to 22,000; in the two years, 1909 and 1910, 1026 were added, showing a counteracting influence to the previous tendency.

The acreage of grain crops in Great Britain, as shown by official estimates, has been maintained, and fruit culture has extended very markedly. The returns for livestock in June, 1911, showed the following totals: Horses 1,627,393, cattle 7,114,264, including 2,825,049 cows, sheep 26,404,992, and pigs 2,822,154. Cattle increased somewhat in numbers, cows and heifers more largely than other classes, but the increase did not keep pace with the growth of population. A failure is noted of the milking herd of the country to keep pace with the steadily increasing demand for milk. Sheep, pigs, and horses did not greatly change.

The recent census in Great Britain also shows that people are flocking to the cities, as in the United States, although not quite so generally. An English paper says: "The British rural population does not increase as it should for two main reasons—the lowness of wages and the scarcity of housing accommodations. The former is undoubtedly due to our antiquated fiscal system, which admits foreign produce free but taxes heavily the British means of production." Germany and France also complain that too many of the young people of the farms hurry to the cities.

In Denmark much attention has been given for some time to the encouragement of small holdings to keep farmers and laborers on the land. The state provides for loans to societies having for their object the purchase and division of large tracts for small holdings, and to agricultural laborers desiring to purchase small holdings—two and one-half acres or more. For these loans the budget provides annually over \$1,250,000. During the ten years, 1900-1910, 5092 small farms were established under this law. The large majority of small holders continue to retain their character as agricultural laborers, working out on the average 155 days in the year.

A recent monograph on Belgian agriculture from 1885 to 1910 gives statistics showing the increase in value of farm lands in that country. This increase ranges from 7 per cent. to over 66 per cent. in the case of ordinary arable and prairie lands, and amounts to 300 per cent. for heath lands, in twenty-five years. The latter fact is due in great measure to experiments

made during the past few years through government aid in the profitable cultivation of heath lands, whereby some of the area formerly used for grazing cattle and sheep is being brought under cultivation. Although the value of heath land for agricultural purposes does not at present compare with that of other classes of land, being by far the cheapest in Belgium, it is beginning to have an agricultural value, which may be greatly increased by reclamation and utilization for crop production.

The cause of the increased land values is attributed largely to the increase in crop production, as a result of better farming methods, said to range from 10 to 50 per cent. or more, thus giving more profitable returns from the land and warranting a higher capitalization.

A census of livestock in the Netherlands, taken in 1910, gives 2,026,943 cattle, 54.6 per cent. of which are milch cows, an increase of 20 per cent. in the total number since 1904. The improvement through careful breeding and other means makes the increased value much higher than this amount. A moderate estimate places their total value at \$112,580,000. The average number of cattle to each 100 hectares (247 acres) of farm and pasture land is ninety-four. There has been remarkable development in poultry raising since 1904. In 1906 more eggs were imported than were exported, but in 1910 the exports exceeded the imports by 14,000,000 pounds.

The latest official report places the number of sheep in European and Asiatic Russia, including western Siberia, at 60,000,000 head. There has been a steady falling off in the production of wool, particularly of fine wools, which appeared at one time to be advancing. This is attributed to the evolutionary condition of farm life now going on in some parts of the country. Large estates which formerly pastured hundreds of thousands of sheep are now being cut up into smaller farms, and high rents have also had an influence.

The latest returns for the sheep industry in New Zealand, the most important industry in that country, showed (1910) a total of 24,269,620 sheep. In 1909 the total production of wool was estimated at 192,822,000 pounds, of which 187,619,000 pounds was exported. The export of wool in 1910 was valued at \$40,378,873, as against \$30,646,616 in 1909, and of frozen, preserved, and cured meat (chiefly mutton and lamb) at \$19,560,684.

ECONOMICS OF PRODUCTION. The cost of producing crops has been under investigation and has furnished important data. The Bureau of Statistics in the United States Department of Agriculture has collected figures from thousands of farmers distributed over the country, and has published the results for corn, wheat, oats, barley, and potatoes. The data are for the year 1909, and are based on reports from 6000 correspondents in the case of corn, 5000 in the case of wheat and oats, 4000 in the case of potatoes, and 200 in the case of barley. For corn, the cost of production, exclusive of rent, ranged from about 21 cents per bushel in the Mississippi Valley to nearly 44 cents in the South Atlantic States, averaging 26.3 cents, for the whole country; while when rent or interest on investment was allowed for, it ranged from about 33 cents in the Mississippi Valley to 56 cents in the South Atlantic States, averag-

ing nearly 38 cents. The average farm value per bushel was 62 cents.

For wheat the cost exclusive of rent ranged from 36 cents in the far Western States to 66 cents in the South Atlantic States, and averaged 46 cents. The figures including rent varied from 52 to 85 cents, and averaged 66 cents per bushel. The average farm value was 96 cents. The cost of producing oats, exclusive of rent, ranged from 18 cents in the Mississippi Valley to 33 cents in the South Atlantic States, and averaged 20 cents for the whole country. Allowing for rent or interest it ranged from 29 to 44 cents, and averaged 31 cents per bushel. The average farm value was 40 cents. Barley production averaged in cost nearly 25 cents for the country as a whole, exclusive of rent, or 36.4 cents when rent was allowed for. Its average farm value was 52.1 cents.

In the case of potatoes the cost, without rent, varied from about 18 cents in the North Central States to 25.8 cents in the South Central, and averaged 21.2 cents for the United States, while including rent the range was from 21.4 cents in the North Central to 30.4 in the South Central, the average being 24.6 cents. The average farm value for the whole country was 53 cents per bushel.

It is stated that the above figures are for the better class of farmers.

The Nebraska Experiment Station has found as the average of two years that the cost of producing a bushel of corn on the better farms was 29.6 cents, wheat 54.9 cents, oats 32.5 cents per bushel; wild hay \$5.37 a ton, clover \$4.18 and alfalfa \$3.10.

In Minnesota the cost of producing milk, estimated from careful studies based on record keeping in three localities, as recently published by the Bureau of Statistics, was \$1.11 per cwt. in 1905, \$1.22 in 1906, \$1.31 in 1907, \$1.27½ in 1908, and \$1.25 in 1909. The cost of producing butter fat ranged from 29.3 cents per pound in 1905 to 34.3 cents in 1909. "The data accumulated show very clearly that under average farm conditions the cost of milk and butter fat production is high and that, based upon cost alone, the income from products sold is not sufficiently high to cover cost of production." However, it is shown that "the dairy enterprise has aided materially in making the farm business as a whole more profitable."

The farmers have profited by the higher prices of agricultural products in recent years, but a large share—often held to be an unreasonably large share—goes to the handlers and distributors who do not manufacture the product in any way and take little risk compared to what the farmer bears from seed time to harvest. Feeling has been especially strong against commission men, the methods of some of whom have often been exposed as dishonest and unscrupulous, and legislation has been sought to regulate their business so as to protect the producer and the public. The methods of distribution through the retail trade are also shown to be uneconomical. Cooperation and direct selling are urged as the means of securing to the producer a more equitable share of the price paid by the consumer, or of dividing profits with the latter, and while each year records some progress in this direction, the rank and file of producers are unorganized and

forced to sell through established channels of trade. The high prices of foodstuffs offer a strong argument for reform in the methods of distribution, from both the farmer's and the consumer's standpoint. As the Secretary of Agriculture pertinently asks: "The consumer pays a dollar for food; the farmer gets less than 50 cents for it; who gets the rest?" Those who view the question broadly do not concede that either the supply of gold or the rush of people from the country to the city, or the taking up of public lands, or increased cost of production and prices paid to farmers, are alone adequate to explain the increased retail prices which the consumer is required to pay. The question is a very complex one, in which the increased prices paid to farmers for some products is a relatively small factor.

Agricultural surveys to ascertain the actual conditions which prevail and to take account of stock, have been undertaken by several of the States. One has recently been started in Ohio, beginning with a reconnaissance soil survey and direct work with farmers to ascertain the cost of production under their conditions. An agricultural survey of four townships in Tompkins County, N. Y., showed that for 749 general farms the average capital invested was \$5527, the average receipts \$1146, and the average farm expense \$389, leaving a balance of \$757, representing the earnings of the farmer and his family and the interest on the investment for a year. This is in addition to having a house to live in and such products as the farms furnish. Making allowance for the value of the labor of the farmer and his family, the average net return on the investment was 6.7 per cent. The labor income of 134 farm tenants averaged \$379. The profit made by landlords varied from 2 per cent. or less, up to 20 per cent. or over, but averaged for 135 farms a return of 8.3 per cent. on their capital.

The results of an agricultural survey of four townships in southern New Hampshire, in which various types of farming were represented, have been published by the United States Department of Agriculture in cooperation with the New Hampshire Experiment station. While there were considerable variations, it was found that after deducting 5 per cent. interest on investment the average farmer in the region surveyed received \$337 for a year's work, in addition to shelter and home-grown food for himself and family, or at the rate of \$1.07 a day for 313 working days. The average profit on the investment, after deducting the farmer's labor, was 5.7 per cent.; on general farms it was 5 per cent., and dairy farms 4.27 per cent., on poultry farms 9.39 per cent., and on a small number of fruit farms 23.08 per cent. Still, the particular type of farming was "not so important as the management of the farm." The most successful farmers were found to be "utilizing their land and equipment to much better advantage." In other words, efficiency was the real keynote of success, a conclusion which it is becoming apparent applies to the country as a whole.

The securing of increased efficiency of the farmer in his management and farming operations is receiving much attention from public men, associations, and business organizations, and is looked to as the principal means of increasing production and maintaining the fertility of the lands. That the yields and the returns are often

not what they might be under good farming conditions is attested by the low averages for the staple crops of the country, and that they might with advantage be greatly improved is the consensus of opinion of students of the subject. The bankers' associations have recently taken up the subject. Bankers of the Central West have interested themselves in promoting corn contests, short courses, institutes, and other means to tend to raise the grade of farming. One banker in Illinois has proposed to loan farmers money on approved notes without interest until after the harvest of 1911, for the purchase of fertilizers and lime to be used on wheat land. This movement was the chief topic at the last session of the Illinois Bankers' Association, which passed resolutions advocating federal funds for local field demonstrations for the benefit of farmers, State legislation for agricultural education in the country schools, support of the good roads movement, and the "establishment of country bankers' federations for the development of soil resources." As a result of the efforts of this association a bill has been introduced into Congress providing appropriation for farm demonstrations.

The railroads have for some time been giving attention to improvement in agricultural production, and this movement for local field demonstrators has taken concrete form in the organization the past summer of the National Soil Fertility League, with a working force and an office in Chicago, which is backed by the railroads. This league is conducting an aggressive campaign to create a sentiment for appropriations, State and national, to provide trained demonstrators in each county who shall bring personally and directly to farmers the results of modern farm teaching. Its advisory committee comprises a list of men prominent in agriculture, finance, education, and public affairs, headed by James J. Hill of St. Paul, and includes President Taft, who in his speech at Kansas City clearly stated the object of the organization and gave it his approval. A widespread and aggressive movement has been set on foot, and powerful support has been pledged to it.

The interest in various forms of agricultural extension work, of which the above is a feature, has grown apace, and many of the States now have large operations organized under State appropriation. The Association of American Agricultural Colleges and Experiment Stations at its convention in November strongly urged national legislation for that purpose.

In Canada, the Commission of Conservation has issued an interesting report dealing with its findings during 1910. An agricultural survey was undertaken to ascertain the state of agriculture in the Dominion, representative areas being taken in each province. Taking the whole number of farms, not more than 9 per cent. were found to follow any intelligent and effective system of rotation of crops. In some localities not a single farmer reported any systematic rotation. Lack of this has already shown injurious results; the fibrous material which formerly held the soil in place having been destroyed in one large area of about 500 square miles, leaving it subject to wind erosion. The statement is made as a result of

the survey that the production of field crops from the land now occupied in Canada would be doubled in three years if the farmers on the average would farm as well as the fifty best farmers whose farms were surveyed. It is suggested that one of the best means of promoting that result would be for municipal, provincial, and federal authorities to join in recognizing these best farmers as "illustration farmers," and in holding up the example of their good practice in order that others might follow their systems and methods.

COUNTRY LIFE. Several States are reducing their ideas to workable form and are trying to make substantial progress in defining the real needs of their communities. In the national meeting at the Corn Show in Columbus, early in 1911, where a four-days' rural-life conference was held, and in the Spokane meeting in the fall the countrywide viewpoint on rural needs was presented. The third National Conservation Congress, at Kansas City, emphasized the social as well as the industrial side of agriculture, and gave much consideration to country life conditions and problems.

At the Farmers' National Congress, one of the older agricultural bodies of the country, held at Columbus in October, 1911, Assistant Secretary of Agriculture Hays suggested that the congress be converted into a national country life federation, a federation of farmers and agricultural associations of the various States, with delegates from institutions and national organizations in any way associated with the improvement of conditions of farm living. The proposal was received with favor, and plans are now under consideration. A number of States have formed permanent country life organizations and held conventions, and have launched movements for the solution of their particular problems. A training conference for rural leaders was held at Cornell University during the summer, and a lectureship on Country Life Problems was established in the Wisconsin College of Agriculture, and an expert assigned to study rural conditions in that State, to discover their deficiencies, as a means of starting a movement for improvement.

The report of the Roosevelt Commission on Country Life has been published in book form, with an introduction by Theodore Roosevelt and an explanation by Professor L. H. Bailey, the chairman, since the Congressional report has never been available for popular distribution, and has long been exhausted (New York, 1911). Another book from the pen of Professor Bailey is entitled *The Country Life Movement in the United States* (London and New York, 1911). It explains that this movement is the working out of the desire to make rural civilization as effective and satisfying as any civilization. It is thus to be an end in itself, and not merely a way of raising more food, or of absorbing city undesirables, or increasing the price of land, although all these things happen as secondary consequences.

INTERNATIONAL INSTITUTE OF AGRICULTURE. The third general assembly of the International Institute of Agriculture convened at Rome, in May, 1911, all but two of the forty-eight countries adhering to the institute being repre-

sented by delegates, of whom there was a total of ninety-nine present.

Perhaps the most important action taken related to the form of reporting the conditions of growing crops. The assembly adopted the plan employed in the United States of making definite estimates of the percentage of probable yield as compared with average yield, instead of a much more indefinite statement which would require interpretation. By this action the institute will seek to induce all countries in its membership to adopt substantially the crop reporting basis employed in the United States, which will enable the reports of the several countries to be combined into a single statement readily understood. The assembly also recommended the appointment of "an international technical commission, composed of eminent specialists from the adhering countries, to take up and study effective international protection against the invasion and spread of diseases of plants and insect pests." Provision was considered for the continued printing of the institute's publications in English. The United States delegates expressed their conviction of the importance of the work which the institute is conducting.

The appointment of a salaried delegate from the United States to this institute was authorized for the first time in the diplomatic and consular appropriation act, \$3600 being provided in addition to the \$4800 which is the United States' quota toward the support of the institute.

The publication of bulletins from the Bureau of Economic and Social Intelligence, relating to the organization of agriculture in different countries, coöperation among farmers of various forms, etc., has been begun; and the statistical service has been extended to include the production of sugar beets and wine.

BRITISH DEVELOPMENT FUND. The Development Commissioners who were appointed under the Development and Road Improvement Funds acts of 1909 in Great Britain issued a report during the summer, outlining the general principles and plans decided upon. In agriculture they aim (1) at increasing the amount and quality of production by aiding in the extension of a system of scientific investigation and research, and a system of education to bring the results into practice, and (2) at increasing the variety of production, by determining what new crops and industries can be added with reasonable probability of profit. Hemp, flax, tobacco, and the sugar beet are crops to which attention has already been turned. Furthermore, they propose to encourage in particular the organization of co-operative enterprises. The preparation of a trained staff is considered a necessary first step, the number of men qualified to conduct agricultural research in Great Britain being inadequate.

The commissioners have allocated roughly £165,000 (nearly \$825,000) per annum, and made £100,000 non-recurring advances. By far the larger proportion of this will go for agricultural research and instruction, viz: England and Wales £105,000 per annum, Scotland £60,000, and Ireland £9000 per annum. This is in addition to schemes for which no definite estimates have yet been made, such as forestry in England and Wales, purchase of a demonstration forest area in Scotland and establish-

ment there of a central school of forestry, the development of Irish fisheries and fishery harbors, and the encouragement of coöperation throughout the United Kingdom.

In the first nine months of their work the commissioners allocated one-third of the annual income guaranteed to the Development Fund for five years.

Early in 1911 a grant of about \$200,000 for the year was made to the Board of Agriculture and Fisheries for the encouragement of light horse breeding in Great Britain. Subsequently an allotment of £50,000 (about \$250,000) a year was made to the Board of Agriculture and Fisheries for research in the various branches of agriculture, to be conducted at institutions already established, for the study of problems of local importance, the provision of advice for farmers on technical questions, and scholarships with a view to fitting men for agricultural research. For the latter purpose the board has awarded twelve scholarships in agricultural science, mostly to men at Cambridge University. The scholarships are for £150 a year, and are tenable for three years. It has also set aside £12,000 a year for grants to certain universities and agricultural colleges in England and Wales to assist in supplying technical advice to farmers and to provide for the investigation of local agricultural problems.

The Development Commissioners have also made a grant for investigating "teart land" (that is, *tart*, or sour land), a term applied to certain pastures in Somersetshire on which cattle scour, £17,000 for the purchase of an area for afforestation in Ireland, and £10,000 for the improvement of horse breeding, and have appropriated to the Board of Education an amount not to exceed £1,576,250 to March 31, 1916, to be used in providing county staffs of agricultural instructors, working from farm institutes as their headquarters, to hold central and itinerant courses.

IMPORTANT EVENTS. A State Board of Agriculture has been established in Alabama under the provisions of an act of the last legislature. This granted an appropriation of \$25,000 out of the fertilizer tag tax for use in farm demonstration work. The Porto Rico Board of Agriculture was organized in June as a branch of the local government. In addition to inspection and quarantine work, arrangements have been made for a survey of the birds and forest resources of the island, with measures for their development, and for the collection of agricultural statistics. A ministry of agriculture and commerce has recently been established in Greece. Steps are being taken for the improvement of the native breed of horses, by the location of good stallions at centres throughout the country. Agricultural experiment stations have been opened, a programme has been arranged for teaching agriculture in the village schools, and the spraying of fruits and vines is being promoted.

A department, headed by a director, has been organized in the islands of Trinidad and Tobago, and a board of agriculture established. In Jamaica a new department of agriculture has taken over the duties of the board of agriculture, the department of public gardens and plantations, and other agencies. A separate board of agriculture was provided for in

Scotland. The government of Ecuador has decided to provide a division for agriculture in the General Direction of Statistics. Steps have been taken in the different provinces for the collection of the preliminary data necessary in the estimation of agricultural production. The Chinese government has also begun the organization of a service for agricultural statistics, and it is expected will be in position to supply information as to the cultivation and production of its most important crops.

At the close of 1910 the French Chamber of Deputies directed the Ministry of Agriculture to undertake the development of work in agricultural meteorology. In accordance with this a committee of sixty-four members has been organized, headed by M. Violle, of the Institute of France, to prepare plans for such a service. In the provision of a separate service for the benefit of agriculture France is following the example of Russia. This movement attracted considerable attention at the last general assembly of the International Institute of Agriculture at Rome, where the international organization of such work was considered.

A service for the inspection of plants for disease was established in France during the year. This is similar to the nursery inspection provided in the United States, and is under the direction of the Ministry of Agriculture. The Russian Department of Agriculture has founded at the Rigi Polytechnicum a school for specialists in swamp cultivation.

Mr. Frederick W. Taylor, of Colorado, has been appointed director of agriculture in the Philippines to succeed Dr. George E. Nelson, resigned. In Belgium Professor Paul de Vuyst, formerly inspector-general of agriculture, has been made director-general of agriculture. Hon. Martin Burrell, a fruit grower of British Columbia, has been appointed minister of agriculture for the Dominion of Canada. Lord Carrington has retired as president of the Board of Agriculture and Fisheries in Great Britain, and has been succeeded by Mr. Walter Runciman, formerly minister for education. Lord Lucas has become parliamentary secretary of agriculture, in succession to Sir Edward Strachey.

Australia has begun the shipment of wheat to Japan, the first commercial shipment, amounting to 500 tons, being made in March, 1911. The Department of Agriculture and Technical Instruction in Ireland is encouraging the breeding of Irish draft horses for general farm and harness work, offering prizes and proposing to purchase colts found suitable for registration.

For several years experiments have been in progress by the United States Department of Agriculture in the production of a new and useful hybrid of the mule type, using the zebra in place of the jack. Eleven of these zebra-ass hybrids have been foaled. They show a decided improvement over either parent in action, conformation, and disposition, and make rapid growth as colts. They have been broken to ride and to draw a load, but their fertility has not yet been tested.

The Department of Agriculture is securing highly satisfactory results in its tea-farming experiments. On the 100 acres in South Carolina, about 12,000 lbs. of tea were produced in 1911, worth fully \$1.00 a pound. A ready

market is found for the product within a limited distance.

Guayule as a rubber plant has been exploited for several years, and the industry of making rubber from it is now in operation in Mexico, where it is said that fully \$30,000,000 of American capital is invested. Nearly two million pounds of guayule rubber were shipped from northern Mexico the latter part of February. The plant grows wild in New Mexico and Arizona, and its use is being exploited. It is prophesied that the wild supply in Mexico will soon be exhausted, as the plant is a very slow grower. The profitableness of its cultivation has not yet been demonstrated.

The New Zealand government has announced through the minister of agriculture a prize or prizes of about \$60,000 for improvements connected with (1) the extraction and dressing of fibre from the New Zealand hemp or flax plant, *Phormium tenax*, or (2) the utilization of the by-products obtained in the process. This plant is entirely different from any other hemp or flax plant, the fibre being imbedded in tough vegetable matter containing a gum and a coloring matter. The greatest difficulty lies in the removal of the vegetable refuse, gum, and dye without damaging or staining the fibre.

A remarkable demonstration of the practicability of the traction plow was given at Purdue University in October, when a new world's record in plowing was established. Three traction engines hitched to a unit of 50 plows, placed side by side, turned over a stubble field at the rate of one acre every 4½ minutes, with a fuel cost for the three engines of 8½ cents per hour. The swath turned over was sixty feet wide, the plows being set 4½ to 5 inches deep. Each of the 50 plows worked independently of the others, rising and falling with the undulations of the ground, demonstrating the utility of such gang plows on uneven land as well as on an absolutely smooth field.

CONGRESSES AND EXPOSITIONS. The International Dry Farming Congress, at Colorado Springs, Col., in October, 1911, was the most helpful session of this congress. The real students of the problem were in control, and land booming was less in evidence. In connection with it a congress of farm women was held, the first of its kind in this country.

The ninth International Agricultural Congress was held at Madrid, Spain, May 1-8, 1911. It divided into eight sections, covering the various branches of agriculture, rural development, agricultural education, and co-operation. Resolutions embracing recommendations upon a number of important points were passed by the congress. It has been decided to hold the tenth international congress in Belgium, in 1913.

The second International Brewers' Congress and an international barley and hop prize exhibition were held in Chicago, October 12-22. One section was devoted to agriculture—barley and other cereals, and hops. There was an International Congress of Apiculture at Turin in September. An International Fibre Congress and exposition were held at Soerabaya, Java, during July. The aims were to further the cultivation of fibres in the tropics, to attain uniformity in product, to show the value of various fibre plants for cultivation, and gen-

eral conference. Representatives were present from various foreign governments, including the United States, Austria, Germany, and Belgium. The exhibits of fibre and fibre-cleaning machinery were pronounced excellent. The fourth International Genetic Congress, in Paris, was occupied mainly with the results of breeding studies on plants to secure special qualities.

A South American Congress of Agricultural Sciences is being arranged for, to be held in Buenos Ayres in July, 1913. The Argentine Rural Society, the National Society of Agricultural Engineers, and the National Schools of Agriculture at Buenos Ayres and La Plata are entrusted with the organization of the congress.

A pure-bred sire league, started at the Wisconsin Agricultural College, has been organized as a national movement to promote the use of pure-bred stock in animal breeding. The National Corn Exposition, at Columbus, Ohio, in February, 1911, was a distinctly national event, exhibits being shown from thirty-five States, with extensive educational exhibits from a large number of institutions. The International Livestock Exposition at Chicago near the close of the year was the largest in the record of entries, and was conceded to be the greatest in point of merit. The carload lots were the marvel of the show, reflecting great credit on their skillful feeding, and the draft horse exhibit was an unparalleled one.

The twenty-fifth annual exhibition of the German Agricultural Society was held at Cassel. The show was notable for the absence of cattle, due to the prevalence of foot-and-mouth disease, and as a show without cattle was unsatisfactory it was decided not to attempt to hold one in 1912.

The Royal Agricultural Show in England was held at Norwich, in June. The one hundred and thirteenth Fat Stock Show of the far-famed Smithfield Club, at London, in December, was of the usual high order of merit, the prize list being the largest of any year except the centenary show.

LITERATURE. Of the long list of agricultural books which appeared during the year the following may be mentioned: *Rural Denmark and Its Lesson*, H. Rider Haggard (London and New York, 1911); *Text-Book of Egyptian Agriculture*, edited by G. P. Foaden and F. Fletcher; *Feeding of Crops and Stock: An Introduction to the Science of Nutrition of Plants and Animals*, A. D. Hall (London, 1911); *Landlexikon*, Konrad zu Putlitz and Lothar Meyer (Stuttgart, 1911); *Dry Farming: A System of Agriculture for Countries under Low Rainfall*, John A. Widtsoe (New York, 1911); *Agriculture in the Central Part of the Semiarid Portion of the Great Plains* (relates to dry farming), J. A. Warren, United States Department of Agriculture (1911); *Agricultural Explorations in the Fruit and Nut Orchards of China*, Frank N. Meyer, United States Department of Agriculture (1911); *Power and the Plow*, L. W. Ellis and E. A. Rumely (New York, 1911); *Guayule, A Rubber Plant of the Chihuahuan Desert*, F. E. Lloyd (Carnegie Institution of Washington, 1911); *The Sugar Industry of Mauritius: A Study in Correlation, Including a Scheme of Insurance of the Cane Crop against Damage Caused by Cyclones*, A. Walter (London, 1910); *Farmers of Forty Centuries, or*

Permanent Agriculture in China, Korea, and Japan, F. H. King (Madison, Wis., 1911).

AIKEN, CHARLES FREDERICK. An American editor and writer, died January 6, 1911. He was born at Cleveland, Ohio, in 1863 and was educated in the University of California. He was employed on the editorial staff of several San Francisco papers and in 1900 became editor of the *Sunset Magazine*, of which, except for a brief interval, he remained editor until the time of his death. He also acted as correspondent for several New York, Philadelphia, and Washington papers. He contributed largely to magazines and periodical articles dealing chiefly with Western development. He was the author of three monographs, *San Francisco* (1903); *California To-Day* (1904); *The Road of a Thousand Wonders* (1905). He was an active member of the Bohemian Club of San Francisco and was the author of several literary and dramatic productions that have made that organization famous.

AIRD, Sir JOHN. An English engineer, died January 6, 1911. He was born in 1833 and was educated privately. At an early age he joined his father in business as a contractor. When he was eighteen years old he was entrusted with a large amount of important work in connection with the Exhibition of 1857. He afterwards became largely connected with the building of gas and water works in England and elsewhere. He was best known, however, in connection with the damming of the Nile. In 1898 the firm of John Aird & Company contracted to build the Assuan Dam and Assiut Barrage and to complete the work in five years. The task was completed in 1902, a year before the expiration of the time stipulated in the contract and three and one-half years after the laying of the first stone. Sir John Aird was returned as member of Parliament in the Conservative interest from North Paddington in 1887 and held the seat until 1905. He was made a baronet in 1901.

AIRSHIPS. See AERONAUTICS.

ALABAMA. POPULATION. The population of the State according to the Thirteenth Census, taken in 1910, was 2,138,093 as compared with 1,828,697 in 1900, an increase in the decade of 16.9 per cent. The chief towns with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Birmingham, 132,695 (38,415); Anniston, 12,794 (9,695); Selma, 13,649 (8,713); Bessemer, 10,864 (6,358); Gadsden, 10,557 (4,282).

AGRICULTURE. The acreage, production, and value of the leading crops in 1910 and 1911 are given in the following table:

	Acreage	Prod., bu.	Value
Corn ....1911	3,000,000	54,000,000	\$42,120,000
1910	2,850,000	51,300,000	36,423,000
Wheat ....1911	30,000	345,000	414,000
1910	28,000	336,000	380,000
Oats ....1911	283,000	5,434,000	3,586,000
1910	283,000	5,286,000	3,142,000
Rye ....1911	1,000	10,000	12,000
1910	1,000	12,000	14,000
Rice ....1911	300	6,000	4,000
1910	1,000	25,000	18,000
Potatoes .1911	15,000	1,170,000	1,381,000
1910	15,000	1,200,000	1,128,000
Hay ....1911	120,000	a 168,000	2,150,000
1910	120,000	172,000	2,170,000
Tobacco .1911	200	b 140,000	35,000
1910	200	100,000	20,000
Cotton ...1911	.....	c1,600,000	.....

a Tons. b Pounds. c Bales.

MINERAL PRODUCTION. The total value of the mineral products in 1910 was \$47,751,059. Coal and pig iron were the chief mineral products.

The coal production in the State in 1910 was 16,091,979 short tons, valued at \$20,209,537. This is a large increase over the production of 1909, which was 13,703,450 short tons. This unusually large tonnage was due primarily to the strike in Illinois and other Western States, and secondarily to low water in the Ohio and Kanawha rivers, which reduced shipments from Pennsylvania and West Virginia to Mississippi River towns. This produced a large demand for Alabama coal. The average price per ton in 1910 was \$1.26 against \$1.19 in 1909. The coal mines of the State were practically free from strikes in 1910. The industry was marked during the year by two bad disasters, which together cost the lives of 131 men. The first occurred on April 20, at Mulga mine and cost 40 lives and the second at the Palos mine and cost 91 lives. The total number of fatal accidents in 1910 was 238. There were employed in the coal mines of the State, in 1910, 22,210 men, who worked on an average 249 days, chiefly of ten hours.

According to estimates made at the end of the year the output in 1911 was about ten per cent. over that of 1910. This was due chiefly to the curtailment of the production of pig iron with a proportionate reduction in coke and to curtailment of the output of coal from the mines of the iron making companies. Labor conditions were normal, the supply being sufficient and without interruption because of strikes.

The State ranks third in the production of iron ore. In 1910, 4,801,275 tons were mined, with a value of \$6,082,722, as compared with 4,321,252 tons valued at \$4,996,455 in 1909. See IRON AND STEEL.

Gold was produced in the State in 1910 to the amount of 1622 fine ounces, valued at \$33,533. A small amount of silver was also mined. No copper was mined in the State in 1910.

EDUCATION. The total enrollment of the schools in the State in 1911 was 431,707. Of these 287,102 were white and 144,605 were colored. The enrollment in the elementary schools was 419,798, of which 275,917 were white and 143,881 were colored. The total number of schools taught during the year was 6566, of which 4590 were for white and 1976 for colored pupils. The average yearly salary of teachers was—for male white teachers, \$413; for female, \$340; for male colored teachers, \$169; for female colored, \$150. The disbursement for the public schools for instruction during the year was \$2,865,254. Of this amount, \$2,507,669 was for white teachers and \$357,585 for colored teachers.

POLITICS AND GOVERNMENT

The State legislature met in 1911 and the measures passed by the session will be found noted below in the paragraph *Legislation*. On January 18, the legislature reflected John H. Bankhead to the United States Senate. Perhaps the most important political event of the year was the passage of the Parks local option bill, which is a virtual repeal of the Statewide prohibition statutes which have existed in the State for nearly three years. In 1909 a constitutional amendment providing for prohibition was overwhelmingly defeated by the voters.

The campaign for governor in 1910 was virtually along the lines of opposition or support of more stringent liquor laws in the State. In this contest the local option element was represented by Emmett O'Neal, while the Prohibitionists had as their candidate Colonel H. S. D. Mallory. Colonel O'Neal was nominated and subsequently elected. There were other indications during 1910 that the sentiment of a majority of the people was for some system of local option. At a meeting of the legislature in 1911 a measure was introduced providing for local option in the State. On February 9 the bill was passed in the House by a vote of 58 to 44, and on February 17 the Senate took similar action. On February 21 the bill was signed by Governor O'Neal. This bill makes the county a unit in voting on the liquor question. To guard against frequent agitation and elections, the bill also provides that an election may be held in any county only on petition signed by 45 per cent. of the number of qualified voters participating in the last previous general election. The passage of the bill through the House and Senate met with bitter opposition on the part of advocates of prohibition, and charges were made by them that the bill was passed because of broken pledges of legislators. A local option election held in Montgomery on July 17 resulted in the defeat of prohibition in that city, where it had been in effect since 1909. Local option was carried by a large majority. Russell county on the same day voted for local option. Other counties which vote out prohibition during the year included Colbert, Jefferson, Mobile, Madison, and Pike. Madison county voted for the reestablishment of a dispensary. On June 5 the voters of Mobile adopted the commission form of government by a substantial majority. The following towns and cities of Alabama are now under this form of government: Birmingham, Cordova, Hartselle, Huntsville, Mobile, Montgomery, Talladega, and Tuscaloosa.

The legislature during the year also created the State Court of Appeals to relieve the State Supreme Court. The new court has final jurisdiction in minor cases.

A State highway commission was created to encourage and have supervision over the construction of roads in the various counties of the State.

An important decision affecting the practice of peonage was rendered by the United States Supreme Court in January. The State statutes upholding the system, as alleged to have been practiced in the State, which were sustained by the Alabama Supreme Court, were declared contrary to the federal Constitution. The case in which decision was rendered was that of Alonzo Bailey, a negro, who made a contract with a company to work as a farm hand for a year at \$12 a month, received in advance pay the sum of \$15. After working for a little over a month he stopped work, but did not refund the money. According to the Alabama law, refusal to work after such a contract is made without refunding the whole advance payment is *prima facie* evidence that the employee intended to defraud his employer. In order to escape conviction for fraud, the employee has then to prove positively that he did not intend to act fraudulently. The law, however, prohibits him from testifying directly as to his own intentions. He is therefore convicted of fraud

by virtue of stopping work, and is then heavily fined and in lieu of payment is put to work without remuneration. The case of Bailey was previously presented to the Supreme Court, but was sent back to the lower courts because all the requisite formalities had not been observed. In the fall of 1910 it again arrived at the Supreme Court. The decision declared the Alabama law contrary to the Constitution and was rendered by Justice Hughes. The dissenting opinion was written by Justice Holmes.

OTHER EVENTS. On May 26 the city of Mobile began the celebration of its two-hundredth anniversary. On April 8 an explosion in the Banner mine near Littleton resulted in the death of 128 miners, most of them convicts.

LEGISLATION. The important acts passed at the legislative session of 1911 included the following: An act was passed creating a Court of Appeals consisting of three judges. This court has final jurisdiction of all civil cases excepting actions to try the title of land where the amount involved, exclusive of interest and costs, does not exceed \$1000. A measure designed to enforce better sanitary conditions in inns, hotels, and restaurants was passed. A bank department of the State was created, under whose supervision all State banks are placed. A number of measures were passed providing for the adoption by the people of a commission form of government by municipalities of the State. A local option act permitting counties by a vote to authorize the sale of vinous spirituous liquors, and the establishment of an excise board, having under its control the issuance of licenses where the sale of liquor has been authorized, was enacted. A State prison inspector was created. It was made a capital felony wantonly to wreck railroad trains. A reformatory for wayward and delinquent females was authorized. The statute relating to the mining of coal in the State was amplified, and a measure was passed regulating the consolidation of insurance companies.

STATE OFFICERS IN 1911: Governor, Emmett O'Neal; Lieutenant-Governor, W. D. Seed; Secretary of State, Cyrus B. Brown; Auditor, C. B. Smith; Adjutant-General, J. B. Scully; Attorney-General, R. C. Brickell; Treasurer, John Purifoy; Superintendent of Education, H. J. Willingham; Commissioner of Agriculture, R. F. Kolb; ex-officio Commissioner of Insurance, Cyrus B. Brown—all Democrats.

SUPREME COURT: Chief Justice, J. R. Dowdell; Associate Justices, Ormond Somerville, A. D. Sayre, John C. Anderson, R. T. Simpson, J. J. Mayfield, and Thomas McClellan; Clerk, R. F. Ligon, Jr.—all Democrats.

STATE LEGISLATURE, 1911: Senate, Democrats, 34; Republicans, 1; House, Democrats, 100; Republicans, 4; joint ballot, Democrats, 134; Republicans, 5. Democratic majority, Senate 33; House, 96; joint ballot, 129.

The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

ALASKA. A territorial possession of the United States, situated at the northwestern extremity of North America. Its total area, according to a revised survey made in 1906, is 586,400 square miles.

POPULATION. The population of Alaska, according to the United States Census of 1910, was 64,356, divided almost equally between whites and natives. There are fourteen incor-

porated towns in the Territory; and of these, five increased in population between 1900 and 1910, five decreased and four are towns which did not exist in 1900. Of all the principal white settlements or mixed white and native settlements appearing in the census returns of 1910, nine showed an increase and fourteen a decrease, while twenty-seven new settlements came into being and four disappeared. The territory is divided into four judicial districts, as follows: The First Judicial Division, with a population of about 9000; the Second Judicial Division, with Nome as its centre of population, 7000; the Third Judicial Division, with Valdez and Cordova as centres of population, 7000; and the Fourth Judicial Division, with Fairbanks as a centre of population, 10,000. The population of the Territory is engaged almost entirely in mining, railway construction, fishing, and occupations related thereto. A few people, chiefly near the mining camps, are engaged in truck farming.

AGRICULTURE. During recent years the possibility of agriculture in Alaska has been widely discussed, and investigations have shown that a considerable portion of the Territory is adapted to the growing of crops. The feasibility of growing wheat, except in an experimental way, is still a matter of doubt, but the successful raising of barley, oats, hay, vegetables, and live-stock has been demonstrated. At an agricultural fair held in Fairbanks, which is in the same latitude as middle Norway, in May, 1911, a great variety of native farm products was shown, which included ripe grain, both thrashed and in sheaf.

The Department of Agriculture has carried on successful experimental work and has shown the possibility of the successful growing of garden vegetables. In 1911, as a result of the increase in farming, the shipments of potatoes from the States was smaller by 25,149 bushels than in 1910; of hay, by 2155 tons; of beans and peas, by 7322 bushels; and of onions, by 964 bushels.

The luxuriant growth of grasses in the territory surrounding Cook Inlet, and in other regions where the winter climate is comparatively mild, induces the belief that stock raising will eventually become a profitable industry. The grazing areas in the Territory are of large extent. In several localities, cattle and horses having been left at the end of the working season to shift for themselves have survived the winter without artificial shelter. White clover grows wild everywhere in the territory south of the Arctic Circle.

MINERAL PRODUCTION. Mining is the chief industry in Alaska. Its settlement has resulted largely from the discoveries of gold. The production of gold for 1910 was 787,148 fine ounces, valued at \$16,271,800. The production of copper was 4,311,026 pounds, valued at \$547,500. These are the chief mineral products. Small quantities of coal, lead, silver, stone, and other minerals are also produced. The total value of the mineral production in 1910 was \$17,191,688. The total value of the mineral output of 1911 is estimated by the United States Geological Survey at \$20,370,000, of which the gold produced was valued at \$17,150,000. The copper production in 1911 was estimated at 22,900,000 pounds, valued at about \$2,830,000. This is, as will be seen, a notable increase over the production of 1910. Most of the gold produced in the Territory comes from placer mines,

although much progress was made during 1911 in paving the way for an increased output from auriferous lodes. This work was carried on in most of the gold-bearing areas of the Territory, but the most notable advance was in the Juneau, Valdez, Kenai Peninsula, Willow Creek, and Fairbanks districts. Prospecting for gold was carried on during the year, especially in the Prince William Sound region. Of the production of the new Iditarod fields, there was little detailed information at the end of the year. It was reported that the total gold production from these fields in 1911 would reach a value of \$3,500,000, as compared with \$800,000 in the previous year. The larger portion of the gold obtained from placer mines came from Fairbanks. The gold production of the Seward Peninsula for 1911 was valued at about \$3,100,000, as compared with a value of \$3,500,000 in 1910. Several new placer mines were found in 1911 at Red Mountain on the headwaters of the Indian River, and in the Ruby Creek region of the Yukon.

The coal resources of Alaska have been more a matter of political than industrial importance. This important question will be found discussed in detail in the account of the visit of Secretary Fisher to Alaska, and the results of his investigations.

TRANSPORTATION. The crying need of Alaska is additional railroad facilities for opening up undeveloped sections of the Territory. This problem in its wider aspects will be found discussed in the paragraphs below dealing with the investigations of Secretary Fisher. There was little actual construction of lines during the year. The Copper River & Northwestern Railway extended its line from Chitina to Kenecott, a distance of sixty-five miles, making the total mileage from tidewater on Cordova Bay 197. This road forms an important link in the improved transportation route between Prince William Sound and the great valley of the Tanana. No work was done on the Alaska Northern Railroad, whose track extends as far as Kern Creek at Turnagain Arm, seventy-two miles from the ocean terminal on Resurrection Bay. At the close of 1911 there were 465 miles of railroad in the Territory, compared with 371 miles in 1910. This mileage is distributed over nine different railroads from five to 196 miles in length.

The Alaska Road Commission did important work in making mining districts accessible by the building of wagon roads and trails. Perhaps the most important undertaking of this kind was the completion of the winter trail from Seward on the Pacific slope to the Iditarod placer district. This shortens the winter route to Nome by about 300 miles.

COMMERCE. The products of Alaska shipped to the States in the fiscal year 1911, other than gold and silver, were larger in value than in any year previous in the history of the Territory. The increase as compared with 1910 was due almost entirely to the large production of canned salmon and of copper ore, the shipments of the latter being increased upon the completion of the railway in the Copper River Valley. The total shipments other than those of precious metals were valued at \$13,813,824 as against \$12,349,402 in 1910. The domestic shipments of gold and silver in the fiscal year 1911 were valued at \$15,171,008 as against \$18,401,849 in 1910. There was a

falling off in shipments of domestic merchandise from the States to Alaska during the fiscal year, the total being smaller than in any year since 1906. The value of coal shipped into Alaska from the United States for domestic consumption decreased, but there was an increase in the quantity from foreign countries. The value of coal brought in from both sources was slightly less in the fiscal year 1911 than in 1910.

FISHERIES. Next to mining, the products of the fishing industry are the most valuable. Statistics for 1911 are not available, but in 1910 there were employed in the several branches of the fisheries 15,620 persons, an increase of 3032 over 1909. The total investment in fisheries was \$20,711,422. The finished product was 214,536,433 pounds, having an export value of \$13,259,859. The salmon output in 1911 was the greatest in the history of the industry. There were packed 2,876,000 cases of four dozen one-pound cans each. Thirteen more canneries were operated in 1911 than in 1910. Other fish which are produced in large numbers are halibut, cod, and herring.

FURS. The value of the furs exported during the fiscal year 1911 was \$394,485, as compared with a value of \$574,764 in 1910. Owing to the inadequate protection of certain species of fur-bearing animals the annual output of furs in Alaska is gradually decreasing. New regulations promulgated in 1910 for the regulation of hunting seals and other fur-bearing animals have resulted beneficially, but there is need of further regulations.

EDUCATION. White schools or schools for white children are conducted in the larger towns and settlements of the Territory. During the year a manual training department was established in the large schools at Kodiak and on Wood Island. Two schools were transferred to newly incorporated towns during the year and three new schools were established. The total cost of the maintenance of the schools for white children during 1911 was \$43,484.

Schools for Natives. About eighty schools for natives are maintained. These are administered by the Bureau of Education at Washington, through a general superintendent and four district superintendents in Alaska.

INDIANS. The condition of the Indians, although improved in recent years, still offers a serious problem in the administration of the Territory. The chief obstacle to the progress of the native races in southeastern Alaska and the Yukon Basin is the sale of liquor. The prevalence of unsanitary conditions is also a menace to the health of the natives. During 1911 a more effective effort was made to break up the liquor traffic among the Indians. This was made possible by the appropriation of \$12,000 for the employment of special agents for the enforcement of the liquor law.

POLITICS AND GOVERNMENT

The question of a proper form of government for the Territory, which has been before Congress for several years, received no definite action during the year. Recommendations made by President Taft in his annual messages in 1909-10 were repeated in 1911. In a speech delivered on October 9, the President declared that while he favored a government by commission he was willing to compromise on a partially elected and partially appointed com-

mission out of deference to the wishes of the people. In the opinion of Governor Clark the chief faults of the present government are not found in the mere form of government nor in the instrumentalities provided in administering it; they arise rather from a lack of certain laws especially suited to local needs. In general, he is in favor of a local territorial government with an elective legislature. In his opinion, legislative measures relating to coal lands, fisheries, mining law amendments, quarantine, sanitation and public health, and compulsory school attendance are urgently necessary.

The vexed matter of the coal fields and their proper operation is discussed below. The action of the Department of the Interior in pronouncing the patents of the Cunningham claims illegal put a final end to the wearisome controversy.

CONTROLLER BAY. The general question of the public lands was opened up, however, by President Taft in throwing open to private entry in July a tract containing 12,800 acres of land on Controller Bay, near the Bering coal fields. In these coal fields are situated the Cunningham claims which were the chief subject of the Ballinger-Pinchot controversy. Charges were made that these grants were made in favor of a monopoly which was endeavoring to secure control of the one good harbor from which coal mined in these fields could be brought.

President Taft on July 26 sent a message to Congress with the avowed purpose of reassuring the American people that the alleged danger of monopoly was not a real danger. In this message he set forth at considerable length his reasons for throwing open this tract of land for private entry. The history of this action, as stated by the President, was as follows: Shortly before Gifford Pinchot ceased to be chief forester, R. S. Ryan applied for the elimination of enough land at Controller Bay to enable the railway company which he represented to secure a site for terminals, shops, etc., on the north side of the bay. The question was submitted to the Forestry Bureau, to the Navy Department, the Secretary of Agriculture, the Secretary of the Interior, and the General Land Office. Mr. Graves, who succeeded Mr. Pinchot as chief forester, reported that he had no objection to eliminating 18,000 acres. The final recommendation was, however, that the elimination be limited to 320 acres and an order was drawn up to this effect. As the amount of land eliminated was small, the provision that it should take effect only after thirty days following its issuance was omitted. The President decided that to grant a tract of land of this size to a single railway company was not desirable, especially because there was no room on such a tract for a terminal town. On his initiative, therefore, he enlarged the proposed elimination from 320 acres to 12,800 acres. The order was issued on October 28, 1910. The President received assurance from the Morgan-Guggenheim syndicate that it had no connection with the railway which Mr. Ryan represented.

The President pointed out that his action in throwing open this land to entry was reasonable and right for three reasons: First, the need of town sites; second, the reservation of the government to certain alternating strips of land; and, third, the control reserved to the govern-

ment of the shallow waters of the bay. On the first point, he declared that in a forest reservation there was no opportunity to secure town sites or proper terminals for a coal road and shipping point. He pointed out that in President Roosevelt's administration several areas had been eliminated on the recommendation of Mr. Pinchot, as well as over 30,000 acres of water front in a harbor known as Valdez Arm. He pointed out also that the Morgan-Guggenheim syndicate already has a route from the Bering coal fields, and declared that the only effect, in his opinion, of preventing railroad construction at Controller Bay would be to leave the field entirely to the Copper River Railway, which is owned by the Morgan-Guggenheim syndicate. He called attention to the fact that even if the claims on the eliminated tract should be allowed to pass to patent, the owner would not have access to deep water, as there is a stretch of mud flats between the shore line and the ship channel. The government would retain absolute control of the building of trestles over these flats.

The President denied emphatically certain allegations of improper influence with regard to the other point of these claims contained in the reputed communication between Richard S. Ryan and Mr. Ballinger, former Secretary of the Interior. The President declared this letter a forgery and denied that he had ever seen it previous to its publication in the various newspapers.

A committee of Representatives carried on an investigation, which was placed in the hands of Louis D. Brandeis. On November 28 he reported that no action on the part of the committee was required, thus instantly exonerating the President from blame. Later the committee reported that the charges made were not sustained. See *UNITED STATES, Congress*.

VISIT OF SECRETARY FISHER. Walter L. Fisher, Secretary of the Interior, made an extensive trip in Alaska during the summer of 1911. His object was to see for himself the conditions under which the most serious problems with which the department has to deal have arisen.

The results of the visit of Secretary Fisher and his conclusions derived from his observations were embodied in an address made at the meeting of the American Mining Congress at Chicago on October 27, 1911. These conclusions may be summarized as follows: He declared that the existing coal land laws applicable to Alaska neither promoted development nor protected the public interests. All coal fields are at the present time withdrawn from entry. Numerous claims under entries made or attempted to be made prior to the withdrawal are pending in the Department of the Interior. As regards railway transportation, Secretary Fisher spoke thus: "Aside from the White Pass and Yukon Road, there is only one real railroad in Alaska and that is the Copper River & Southwestern Railroad which leads from Cordova on Prince Williams Sound, 200 miles up the Copper River and its eastern tributary Chitina to the Bonanza copper field, and is reported to have cost approximately \$20,000,000. The White Pass & Yukon Railroad is an excellent narrow-gauge road along the line of the historic trail that leads over the mountains and down the Yukon to the gold fields of the Klondike, but only a small part of this railroad is in the United States. The Alaska Northern Railroad

starts from Seward for the Matanuska coal fields and the Yukon, but stops discouraged 71 miles north of Seward. The present cry in Alaska and among those who are financially interested in Alaska is that development has been stopped by the withdrawal of the coal fields from entry. I am convinced that the coal withdrawals have exerted only an incidental influence upon the development of railroads in the Territory. Even if the withdrawals had not been made, the enforcement of the restrictive provisions of the present law and of the act of 1904 would have had substantially the same effect as the withdrawals themselves. The critics of the withdrawals are usually either those who do not realize the prohibitory effect of the coal laws in Alaska or those who have assumed that these laws could be violated with impunity. If the coal fields had remained open to unrestricted private exploitation, railroad development might have been stimulated, but in that event the profits of the coal and not of the railroads would have been the incentive to construction."

Mr. Fisher made a careful examination of the coal fields and his observations may be summarized as below: The coal of Alaska is of great value, but its extent and character have been greatly exaggerated. There are great quantities of lignite and low-grade bituminous coal in several parts of the Territory, but there are only two fields of accessible high-grade coal. The better known of these two fields is the Bering River field which is near Controller Bay and in which the Cunningham claims were located. In this field the Alaskan controversy has been fiercest and most bitter. The other, the Matanuska field, is larger and may prove to be more important. Both of these fields contain anthracite and high-grade bituminous coals. The chief question is how they shall be opened so as to promote development and protect public interests. It is possible to open up the coal fields so as to enable a larger or smaller number of individuals or groups of individuals to make money out of its development, bringing with this development considerable incidental benefit to the community as a whole through the expenditure of money and the employment of men; the other alternative is to open the fields on terms which will offer the operator a sufficient profit to furnish an adequate incentive for his investment and his efforts, but which will result in placing the coal upon the market at the cheapest price consistent with this incentive, conferring upon the community the manifold advantages of cheap fuel and of the development of the many forms of industrial enterprise that cheap fuel renders possible. In the opinion of Mr. Fisher, the second of these objects is the one to be attained. To consider, however, the question of a market for the coal is most important. There is at present on the Pacific coast no available anthracite except that in Alaska. It would be natural, therefore, to expect an immediate demand for this particular kind of coal. There is also little high-grade bituminous on either the eastern or western border of the Pacific and it might be assumed that there would be a considerable demand for coal of this character. There is little, if any, high-grade coking coal on the Pacific coast except in Alaska and there is an immediate demand for a certain amount of this coal for smelting copper and other ores. Except the

coal for coking use, Alaskan coal must contend with serious competition. There are considerable quantities of lignite and low-grade bituminous coal throughout the Pacific Northwest and in British Columbia. Much of the bituminous coal is of a fair quality. When freight and handling charges are taken into consideration, for steaming purposes the coal of British Columbia and of the Northwestern States will hold everything but the Alaskan market itself against competition from any of the Alaskan except that of the very highest grade, and this quality may expect to win only where special considerations control. The most serious competitor for ordinary heating and steaming purposes is California oil, which is already supplanting coal in many fields and possesses advantages in economy and convenience of handling. In Mr. Fisher's opinion, the present market for Alaskan coal is limited and uncertain, but the demand in Alaska will rapidly increase as the country is developed. If the mines are opened, in his opinion, there will be immediately established on Prince Williams Sound one or more smelters capable of smelting the copper ores and other ores which exist in large quantities in various parts of the Territory.

From his examination of the Bering coal field, Mr. Fisher found that it covered fifty square miles or 32,000 acres, lying approximately 25 miles from the coast of Controller Bay. This field was discovered in 1896 and it is practically all covered by claims under the law of 1904. As a result of the sliding of the stratification of this field, the larger portion of the coal beds have been so crushed as to leave what otherwise would have been the highest grade of bituminous coal so that much of it cannot be mined as lump coal. There is, however, some coal in the field that can be mined as lump. These conditions add to the difficulty of mining in this field. Aside from its crushed condition, much of the coal itself is of excellent quality, possessing high thermal value. The crushed condition does not impair the coking quality if the coal is otherwise good. The erection of smelters on Prince Williams Sound will cause an immediate demand for this coal. No smelters have as yet been constructed and none will be probably until the coal and copper can be brought together. The exploitation and commercial development of its ores will promptly follow the construction and operation of smelters.

In connection with possible harbors for the shipping of coal from these fields, Mr. Fisher comments on the much agitated question of Controller Bay. The bay is enclosed partly by rocky remnants of the hills and partly by low reefs built up of mud brought down by glacial streams and raised above the water surface by action of the waves. The bay itself is gradually being silted up by similar material from the same extensive glaciers which border the coal fields on the north and east and probably cover many beds of coal. The entire bay is shallow except a narrow irregular channel from a few hundred yards to a mile in width and a few fathoms in depth lying southward and westward to the sea. This channel lies two or three miles out from the shore, with shallow mud flats intervening. To develop the harbor it will be necessary to construct piers or roadways from the shore out over the shallow flats to the channel. On the whole, Mr. Fisher

does not look with favor on Controller Bay as a favorable point for the terminus of the railroad to carry coal from the Bering field. He considers Cordova a much more favorable location.

The Matanuska coal field is larger in extent than the Bering field. It has an area of seventy-four square miles, or 47,360 acres. The coal is better in physical condition and freer from the competition of private claims than is true of the Bering River. Against these advantages must be set off its greater distance from the sea. The field lies north of Prince Williams Sound and from 150 to 200 miles from Seward on Resurrection Bay. It is known to contain extensive beds of coal of the same quality as, or slightly superior to that of Bering River, and is in better physical condition both as to the coal itself and as to the obstacles to profitable mining. A far smaller percentage of the field has been entered by private claimants and most of these claims appear to be clearly illegal on account of dummy entries and other violations of the law, for which indictments are now pending. A railroad has been started from Seward to develop this field and open up the great interior valleys which are covered with luxuriant grasses and can be made to raise cattle and sheep and even grain, under certain conditions. Seward possesses an excellent harbor, landlocked and free from ice and already selected by the government as a naval coaling station. The railroad from Seward, the so-called Alaska Central or Alaska Northern, extends only seventy-one miles to a point on Turnagain Arm, where it stopped for lack of funds and for various other reasons. Mr. Fisher believes that this road should be continued on to the coal field by the government if no other means are available. No large financial interests are back of the railroad and no large investments have been made which it will be necessary for private interests to protect. He believes that those interested in the railroad will sell it to the government for the face of the outstanding bonds, which amount to \$4,600,000.

Secretary Fisher considers somewhat in detail the methods by which the coal fields in Alaska may be opened. The methods suggested have been the sale of the lands in fee, their development under lease from the government, and their operation by the government itself. He believes that the time is past when the government should convey an unrestricted title to its coal fields. To impose effective regulations upon enterprises after they have passed to private individuals in fee is exceedingly difficult if not impossible. The ownership of the fee carries with it under the law the right of unrestricted sale and many regulations which are desirable in the public interest can be imposed, if at all, only after radical changes in the laws and prolonged litigation in the courts, perhaps only after constitutional amendments. On these grounds, therefore, it is unnecessary in his opinion to sell the coal lands in order to secure their effective development. Government operation, on the other hand, including the mining and selling of coal, involves such deep and far-reaching changes both of policy and of administration that there is no likelihood at the present time of its adoption to the exclusion of private operation. Unlike government ownership of railroads, public coal mining has never been held by the courts to be a function of the government.

It would be regarded by many as an invasion of the field of private enterprise and would involve such general and uncompromising opposition that even those who believed in its adoption as a matter of principle should not insist upon tying up the coal fields of Alaska until the great economic and political questions that are involved in its exclusive application to these fields have been fought out to a practical conclusion. Mr. Fisher believes that the leasing system avoids the controversies and difficulties of both extremes of public and private ownership. It has been adopted with conspicuous success in the great mining communities of Australia and New Zealand. It is also the established law of the Yukon territory lying in Canada, just across the border line from Alaska. Under it much of the privately owned coal land of the United States is to-day being developed. Under the operation of this system can be inserted as matters of contract and as conditions to which the lessee voluntarily consents, those regulations and requirements which promote the public interest, the enforcement of some of which by mandatory law might be unconstitutional. Instances are cited by Mr. Fisher of the successful operation of the leasing system in foreign countries and in Wyoming, Colorado, and other States. The practical difficulty in operating the coal fields in Alaska at the present time is the fact that under the existing laws it is impossible for operators to obtain a sufficient area of coal land to make its operation profitable. While Mr. Fisher found in Alaska strong opposition in certain quarters to the leasing system, on careful presentation of the question to those who opposed it, the objections were, for the most part, withdrawn. While he was at Cordova he was presented with a series of resolutions adopted by the Cordova Chamber of Commerce expressing its disapproval of the leasing system for the coal lands. After his return from Alaska he received from the same chamber a statement to the effect that that body did not desire to be considered as opposed to the leasing system. Similar assurances were also received from the Seward Commercial Club and other bodies both in Alaska and in the United States.

Secretary Fisher expressed himself as greatly pleased with the fair-mindedness and public support of the Alaskan people on the subject. He believed that back of their naturally great and justifiable desire for immediate action they want done in the matter whatever will in the end prove best for the nation as a whole, without regard to special individual or corporate interests.

On May 5, a so-called riot occurred at Cordova, during which a quantity of coal was thrown from the dock of the Alaska Steamship Company as a protest against the government's ignoring the demands of the people of Alaska that the coal lands of the Territory be opened up. Governor Clark took measures to suppress the violence. Later reports indicated that the accounts of the affair as originally printed in the newspapers were greatly exaggerated. The demonstration really amounted to but little.

A federal grand jury on March 16 in Chicago returned indictments against A. C. Frost, promoter of the Alaska Central Railway, and eight men associated with him on charges of conspiracy to obtain title by fraud to more than 10,000 acres of coal lands in the Matanuska district.

For an account of earthquakes in Alaska in 1911 see **EARTHQUAKES**.

ALASKA COAL LANDS. See **ALASKA**.

ALASKAN EXPLORATION. See **NATIONAL GEOGRAPHIC SOCIETY**.

ALBERT I. See **BELGIUM**.

ALBERTA. A province (since September 1, 1905), of the Dominion of Canada. Capital, Edmonton (population, preliminary figures, census of June 1, 1911, 24,882). Area, 253,540 sq. miles; population (final, 1911 census), 374,863. The lieutenant-governor (in 1911, and since September 1, 1905, George Hedley Vicars Bulvea) is appointed by the governor-general of Canada. He is aided by an executive council (a responsible ministry of four members) and a legislative assembly (forty-one members elected for five years). Premier in 1911, A. L. Sifton. See **CANADA**.

ALBRO, ADDIS. An American Methodist Episcopal clergyman and author, died October 15, 1911. He was born in Middleburg, N. Y., in 1855, and was educated at Lawrence University. He studied law at the Albany Law School. In 1881 he was ordained to the ministry and held pastorates at Moline, Ill., and Utica, N. Y. He was at one time chaplain of the New York State Senate and was later secretary of the New York State Sabbath and American Reform associations. He contributed articles to encyclopædias and was the author of *The History of Our Country's Flag* and was editor of the *Reform Magazine*.

ALCAZAR. See **MOROCCO, History**.

ALCOHOL. The apparent relation between total abstinence and longevity is shown in the seventieth annual report of the United Kingdom Temperance and General Provident Institution. The figures show that in the general section the expected mortality for the five years 1906 to 1910 was 2282 and the actual mortality was 1900, while in the temperance section, confined to total abstinents, the expected mortality was 2291 and the actual mortality only 1504. The surplus allows of a bonus on policies of 2.1 per cent. in the temperance section and 1.7 in the general section. The report of the Sceptre Life Association shows a similar result favorable to total abstinents. For the twenty-seven years, from 1884 to 1910, the expected deaths in the general section were 3352 and the actual deaths 2674—79.7 per cent. In the temperance section the expected deaths were 2311 and the actual deaths 1124, or 52.5 per cent. The figures of the temperance insurers are not only better over the whole period, but for every quinquennium since 1893 they show an increasing superiority. Thus for the quinquenniums 1894-1898, 1899-1903, 1904-1908, and the two years 1909-1910, the percentage which actual deaths form of expected deaths were in the general section 79.3, 76.9, 80.8 and 80.9, while in the temperance section there were only 54.4, 52.5, 48.4 and 48.4; so that while the mortality in the general section shows no decline, the mortality in the temperance section exhibits a steady fall from 1894 to 1908. This is attributed to a larger number of the assurers in the temperance section being life abstainers and to an increasing number being the children of abstainers.

The relation of alcoholism to crime is demonstrated by Dr. Gerö, a medical expert attached to the Vienna law courts, who examined ninety-four individuals charged with homicide or at-

tempted homicide. In this number there were six malingerers and four persons who were wrongfully supposed to be the subject of mental defects. Of the remaining eighty-four criminals, seventy were males and fourteen females. With regard to their state of health, the following conditions were noted: One case of pregnancy with mental derangement, one case of morphinomania, one of hysteria, nine of delusions, seven of various states of mental disorder, eight of hysteria or epilepsy, thirteen of various diseases either supposed or known to have an effect on the brain, ten cases of mental defect, and thirty-four cases of alcoholism. Gerö emphasizes the fact that the cases of alcoholism thus formed more than one-third of the total number of persons charged with homicide. The influence of alcohol as a contributory cause of homicide would seem to be even greater if instead of a mere enumeration of accused individuals personally addicted to alcohol, an examination were made of the antecedents; this would show that many epileptics and mental defectives were the children of alcoholic parents.

The connection between alcohol and misdemeanors in the German army and navy is shown by some interesting facts recently published. The offenses committed from drunkenness against military discipline in the army have ranged from 9.6 to 12.5 per cent. of the total misdemeanors in the last ten years, and in the navy from 11.1 to 22.3 per cent. This does not include slight infractions of military order. Of the most serious offenses against military discipline (actual attack, mutiny, insubordination) about three-quarters are due to the clouding of the consciousness by alcohol. See **EPILEPSY**; **INSANITY**.

WOOD ALCOHOL. The committee appointed by the American Medical Association to investigate the question of blindness produced by wood alcohol was able to find a list of over three hundred cases of blindness and death which had occurred in the United States from the drinking or inhalation of methylated spirits. Two cases of poisoning from the inhalation of varnish fumes have been reported. These occurred in two men who had been stricken simultaneously after working as beer vat varnishers. One of the men died and one was totally blinded. The cases were undoubtedly due to breathing the fumes of wood alcohol, this being one of the chief ingredients used in the varnish for beer vats. So strong are the fumes, that while these huge containers are being varnished it is necessary to employ a watchman to keep all lighted cigars and cigarettes outside the danger zone—ten feet in most instances. The committee urges the substitution of a cheap commercial grain alcohol that has all the advantages of purified wood alcohol and which has no deleterious effects on those who work with it. They report that in European countries such alcohol is used entirely for industrial purposes. In Germany alcohol is denatured completely or incompletely according to the purpose for which the spirit is to be used. Complete denaturation is accomplished by adding to every 100 liters of alcohol 2½ liters of standard denaturizer made of 4 parts of wood alcohol, 1 part of pyridin, a coal-tar product, and 50 grains to each liter of oil of rosemary or lavender. A slightly different method consists in adding to every 100 liters of alcohol 1¼ liters of the standard denaturizer

and 2 liters of benzol. Incomplete denaturation is employed where the alcohol is to be used for the special purposes for which the completely denatured spirit would be unsuitable. The process is such as to render the spirit unfit for drinking and varies according to the purpose for which it is to be used; for instance, for the manufacture of varnishes and inks, the alcohol is denatured by the addition of oil of turpentine or of animal oil. Alcohol for the manufacture of soda soaps is denatured with castor oil. Denatured alcohol is used in the manufacture of celluloid and pegamoid. Alcohol for the manufacture of ethers, aldehyde, argacin, white lead, bromo-silver, gelatines, etc., is denatured by the addition of sulphuric ether, benzol, oil of turpentine, or animal oil. Wood alcohol poisoning, however, is not unknown in Europe. Dr. Filletar, director of the public analytical offices in Budapest, discussed some recent cases of poisoning by wood alcohol. He said that the majority of these victims were of alcoholic habits and had taken to drinking the methyl spirit either from a liking for it or as a substitute for unattainable ethyl alcohol. The fatal dose in these cases was half an ounce. One of the patients was poisoned by inhalation of the vapor, and another by absorption through the skin. These were workmen in a distillery. The most constant symptoms of poisoning are mild intoxication, followed by severe headache, gastric pain, retching, dilatation of the pupils, and partial or complete blindness. In the most serious cases, this sequence was followed by dyspnea, coma, with stertorous breathing and death. The toxic amblyopia is the most constant and important symptom. Even when recovery takes place, atrophy of the optic nerve is likely to follow and permanent blindness result. See CHEMISTRY, INDUSTRIAL.

ALCOHOL, EFFECTS OF. See INSANITY.

ALCOHOL FOR INDUSTRIAL PURPOSES. See CHEMISTRY, INDUSTRIAL.

ALDRICH, NELSON WILMARTH. See BANKS AND BANKING.

ALEXANDER, BOYD. See EXPLORATION.

ALEXANDER, WILLIAM. An Irish Anglican prelate, Archbishop of Armagh, and Primate of All Ireland, died September 12, 1911. He was born in Derry, Ireland, in 1824 and was educated at Tunbridge School, Kent, and Exeter and Brasenose colleges, Oxford, graduating from the latter in 1847. He was soon afterwards ordained a deacon and in 1850 he was appointed rector in County Tyrone, Ireland. After serving as rector in several parishes he was made, in 1864, Dean of Emly. He was consecrated Bishop of Derry in 1867 and remained identified with this diocese for the next thirty years. He became known as an able administrator, a learned contributor to theological literature, and a great preacher. In 1896 he was appointed Archbishop of Armagh to succeed Dr. Robert Gregg. Dr. Alexander took a keen interest in the church in the British possessions. In 1892 he visited South Africa and in the following year delivered a course of lectures in New York on *Evidences of Christianity*. These addresses, along with some others, delivered at Harvard University, formed the substance of one of his last books, entitled *Primary Convictions*. In addition to his work as theologian, the archbishop wrote poetry of considerable merit. His chief reputation, however, was gained as a preacher. In some respects he was the most

brilliant of the preachers of his day. He did not take a great interest in politics, but opposed Mr. Gladstone's Home Rule bill of 1893 in a great oration delivered at Albert Hall. Among his published writings are *Discourses on Epistles of St. John*; *Commentaries on Epistles to Colossians*; *What Think Ye of Christ?* and other sermons, *Leading Ideas of the Gospels*, *Witness of the Psalms* and *The Finding of the Book and other Poems*.

ALFALFA. Although rather drought resistant, the alfalfa crop was nevertheless reduced by the droughty conditions prevailing in many parts of the world in 1911. Comparative data on the production of alfalfa are not generally available, as most countries include the production under hay of all kinds. Germany, which reports separately on alfalfa, produced this year 1,203,500 tons, the average yield being only 2.01 tons per acre, as compared with a production of 1,830,000 tons and an average yield of 3.05 tons per acre in 1910. In the United States the crop was much reduced by dry weather, and in the Western States, where it is most extensively grown, the first cutting was much below the average, and many farmers allowed the crop to go to seed instead of cutting it for hay. Data with reference to the crop in the different States for 1910 and 1911 are not available, but figures are given in the table on the opposite page for 1909. These statistics were collected by the Thirteenth Census, and they are the first general data on the crop in the United States. The States are arranged in the order of their alfalfa hay production.

ALGERIAS. See MOROCCO, *History*.

ALGERIA. A French colony (administratively an integral part of the French Republic) on the northern coast of Africa. Capital, Algiers.

AREA, POPULATION, ETC. Total area, 505,769 square kilometers (area by departments: Algiers, 54,205 square kilometers; Constantine, 87,434; Oran, 59,613—total Algeria proper, 201,252; Southern Territories, 304,517). Total population in 1906, 5,231,850; census of 1911, 5,563,828; Algiers, 1,720,881; Constantine, 2,118,446; Oran, 1,230,195—Algeria proper, 5,069,522; Southern Territories, 494,306. The total native population was 4,768,306; European, 795,522. Marriages (1909), 33,699 (Europeans, 5342); births, 143,840 (20,845); deaths, 110,760 (13,694); still-births, 2002 (676). Algiers had (1906) 154,049 inhabitants; Oran, 106,517; Constantine, 58,435; Bone, 42,934.

Primary and infant schools numbered (1907) 1358, with 3489 teachers and 159,581 pupils; Mussulman, 286 (no returns for pupils); secondary, 21 (5802 pupils); normal, 4 (259). There are higher Mussulman schools and a European professional college at Algiers.

PRODUCTION. Area under principal crops and yield are shown below for two years (1911 preliminary), with yield per hectare in 1910:

	Hectares		Quintals		Qs. per ha.
	1910	1911	1910	1911	
Wheat	1,386,770	1,337,411	10,716,112	9,959,934	7.7
Rye	1,472	636	15,876		19.8
Barley	1,383,464	1,360,500	10,605,022	10,399,613	7.7
Oats	163,745	181,411	1,924,455	1,755,092	11.8
Corn	14,594	8,911	140,119	85,573	9.6
Vines*	126,386	150,486	8,413,654	8,443,368	66.6

* Yield in hectoliters.

ACREAGE AND HAY AND SEED PRODUCTION OF ALFALFA IN 1909, AS PUBLISHED BY THE THIRTEENTH CENSUS.

States	Area Acres	Hay Tons	Seeds Bushels	States	Area Acres	Hay Tons	Seed Bushels
Kansas	955,470	1,995,571	49,870	Arkansas	15,928	33,231	24
California	484,098	1,639,707	23,791	Louisiana	12,073	28,146	.....
Nebraska	685,038	1,521,620	31,306	Mississippi	9,245	16,710	.....
Colorado	508,892	1,265,915	18,040	Michigan	6,553	13,872	203
Idaho	308,892	964,529	.....	Tennessee	5,323	10,600	.....
Utah	284,182	791,355	51,812	Pennsylvania	4,935	9,154	.....
Montana	224,226	600,647	11,089	Alabama	6,987	8,906	.....
Wyoming	170,431	397,669	8,396	Virginia	3,126	7,203	2
Oregon	120,345	375,211	3,681	Maryland	3,188	6,806	.....
Washington	94,900	357,595	.....	Minnesota	2,297	6,334	16
Oklahoma	206,614	321,367	.....	North Dakota	2,582	4,947	.....
New Mexico	102,650	265,622	4,959	New Jersey	1,386	3,251	.....
Nevada	87,877	232,774	221	West Virginia	696	1,496	.....
Arizona	66,102	194,534	.....	North Carolina	735	1,394	.....
South Dakota	66,113	153,680	.....	Georgia	545	1,079	.....
Texas	55,332	97,938	1,676	Connecticut	516	731	.....
Missouri	35,416	96,067	14	Delaware	205	580	.....
New York	35,338	87,029	247	Vermont	253	515	.....
Iowa	29,143	84,569	7	Massachusetts	232	394	.....
Ohio	29,439	70,128	97	South Carolina	138	328	.....
Illinois	18,344	52,344	74	Maine	174	216	.....
Wisconsin	17,986	49,794	684	New Hampshire	47	97	.....
Indiana	17,898	40,320	.....	Rhode Island	34	78	.....
Kentucky	20,229	37,978	64	Florida	49	63	.....
				United States	4,702,202	11,849,998	259,586

Iron, copper, quicksilver, zinc, and lead mines are worked. Value of output (1907), 21,634,043 francs. Value of phosphate produced, 11,216,500 francs. Fisheries production, 3,865,730 francs.

COMMERCE AND COMMUNICATIONS. The value of the special trade is shown below for four years in thousands of francs:

	1907	1908	1909	1910
Imports	448,200	449,300	462,000	507,800
Exports	338,500	319,200	359,200	493,300

Principal articles of export (1909) are seen below:

Exports	1000 fr.	Exports	1000 fr.
Wine	36,223	Phosphates	10,336
Cereals	50,765	Iron ore	10,264
Animals	37,944	Skins	9,376
Wool	13,745	Tobacco	7,850
Cork	11,262	Esparto	5,872
Fruits	11,114	Legumes	5,502
Zinc	10,781	Olive oil	3,317

France contributed imports and received exports (1909) valued at 397,108,000 and 271,966,000 francs respectively; Great Britain, 13,870,000 and 15,925,000; Morocco, 7,964,000 and 6,779,000; United States, 6,515,000 and 3,638,000. Vessels entered (1909), 4724, of 5,158,137 tons (2116, of 2,250,234 tons, French); cleared, 4867, of 5,424,847 (2175, of 2,356,771, French). Merchant marine (Jan. 1, 1910), 961 vessels, of 31,443 tons (steamers, 105, of 21,246 tons).

Railways in operation (Dec. 31, 1910), 3297 kilometers main and 150 kilometers local lines. Telegraph lines, 15,062 kilometers; wires, 39,257; number of offices, 708; post offices, 650.

FINANCE AND GOVERNMENT. The monetary unit is the franc, worth 19.3 cents. Revenue and expenditure in 1908, 115,186,178 and 108,078,035 francs respectively. The 1911 budget is as follows:

Revenue	1000 fr.	Expenditure	1000 fr.
Indirect taxes	40,176	Interior	24,959
Direct taxes	13,767	Pub. works	21,540
Monopolies, etc.	8,969	Debt	17,054
Domains	7,922	Posts and tels.	10,885
Receipts d'ordre.	26,624	Finance	9,222
Various	2,556	Agriculture, etc.	8,323
Extraordinary	44,535	Native affairs	5,675
		Internal gov't	2,079
Total	144,549	Various	275
		Extraordinary	44,535
		Total	144,547

The 1911 budget for the Southern Territories showed revenue, 5,615,244 francs; expenditure, 5,608,353. Communal debt (end of 1907), 67,440,036 francs.

Algeria is administered by a governor-general (1911, M. Lataud), aided by a consultative council. The legislative authority rests in the French Chambers.

ALIENS. See IMMIGRATION.

ALLEN, AMOS LAWRENCE. An American public official, member of Congress from Maine, died February 20, 1911. He was born in Waterborough, Me., in 1837. He graduated from Bowdoin College in 1860. He studied law at Columbian (now George Washington) University, and was admitted to the bar in 1866. For three years he was a clerk in the United States Treasury Department and from 1870 to 1883 was Clerk of Court of York county, Me. He served as a clerk in the House of Representatives, and in the Pension Bureau from 1883 to 1885. In 1886-7 he was a member of the Maine House of Representatives. In 1893 he became private secretary to Thomas B. Reed and served in that capacity until 1896. He was elected to the 56th Congress in 1899 to fill the vacancy left by the resignation of Mr. Reed. He was reelected from the 57th to the 61st congresses but declined to be a candidate for the 62d Congress.

ALLEN, ETHAN. An American lawyer and soldier, died December 7, 1911. He was born in Monmouth county, N. J., in 1832 and was the

grand-nephew of Ethan Allen of revolutionary fame. For several years he served as Washington correspondent for the New York *Herald* and resigned this position to enter Brown University, from which he graduated in 1859. He then studied law at the New York University Law School, graduating in 1860, and at once began the practice of law. In the campaign of 1861 he supported Abraham Lincoln, and in the same year was appointed assistant United States district attorney. He resigned to accept a commission as colonel, and organized and equipped Blair's Brigade, at the head of which he went to the Civil War. After the war he resumed the practice of law. In 1872 he joined the Liberal Republicans and managed Horace Greeley's campaign for the Presidency. He also organized the Cuban League of American Sympathizers in 1870, reviving it in 1896 and continuing it until the end of the Spanish-American War. In 1890 he retired from the active practice of law. He was the author of *Washington, or the Revolution* (a history of the American Revolution in dramatic form, blank verse), and *Rozina*, a society drama.

ALLEN, JAMES LANE. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

ALLOYS. See CHEMISTRY, INDUSTRIAL.

ALMEIDA, C. DE. See PORTUGAL.

ALMSHOUSES. See CHARITY.

ALOFI ISLAND. A dependency of New Caledonia (q. v.).

ALSACE-LORRAINE CONSTITUTION. See GERMANY, *History*.

ALUMINUM. The consumption of aluminum in the United States in 1910 was 47,734,000 pounds. This practically represents the production of that year. The growth in the production and consumption may be seen by comparing the figures for the preceding years. In 1907, 17,211,000 pounds were consumed; in 1908, 11,152,000 pounds, and in 1909, 34,210,000 pounds. From the beginning of production in 1883 the total amount produced and consumed is 193,626,779 pounds. The year 1910 was one of progress in the industry, taken as a whole, but particularly so in that branch of the industry having to do with the processes of manufacture and new applications of the metal. Many inventions were patented relating to almost all branches of the metallurgy of aluminum and its use in alloys. The exploitation of the aluminum-process patents and the great increase in the output of that metallic aluminum have given rise to many scientific researches and commercial inquiries regarding new methods for its production. Aluminum silicates are found almost everywhere and the problem is to separate the silica from the aluminum. An important invention has recently been patented by F. J. Tone, having for its object the production of silicon from kaolin and the formation of pure alumina as a by-product. The exports of aluminum from the United States in 1910 were valued at \$949,215, as compared with a value of \$587,375 in 1909, and \$330,092 in 1908. The use of aluminum, particularly in aluminum tubing, and paper, chemical, and other similar lines of manufacturing, has made steady growth in recent years. The use of aluminum in extruded shapes has also been constantly increasing. The metal continues to be more widely used each year in the manufacture of cooking utensils. See CHEMISTRY, INDUSTRIAL.

AMAZON BASIN, EXPLORATION OF. See EXPLORATION.

AMERICAN ANTI-BOYCOTT. See BOYCOTT.

AMERICAN ASSOCIATIONS AND SOCIETIES. Organizations whose official title begins with the word American are treated under titles of the subjects with which they are concerned.

AMERICAN ECONOMIC ASSOCIATION. See POLITICAL ECONOMY.

AMERICAN-JAPANESE TREATY. See JAPAN, *History*, and UNITED STATES, *Treaties*.

AMERICAN PEACE SOCIETY. See ARBITRATION.

AMERICAN PRISON ASSOCIATION. See PENOLOGY.

AMERICAN SOCIOLOGICAL SOCIETY. See SOCIOLOGY.

AMERICAN SUGAR REFINING COMPANY. See TRUSTS.

AMERICAN TOBACCO COMPANY. Exactly two weeks after its decision of the Standard Oil case (q. v.) the United States Supreme Court handed down the decision requiring the dissolution of the tobacco trust. Suit against this combination was begun in the Circuit Court for the Southern District of New York in July, 1907. In the decision of that court in November, 1908, one of the four judges dissenting, the court held the combination to be illegal under the Sherman law, but it also held that "the evidence fails to show that defendants have practiced unfair or offensive methods" and that "they have not in fact injured commerce." In other words the Circuit Court held the combination illegal because the Sherman act prohibited, even in greatest detail, all contracts which restrained trade or competition. Both parties appealed to the Supreme Court, before which the case was presented in January, 1910. Unusual circumstances (see STANDARD OIL) delayed decision until May 29, 1911.

This case involved twenty-nine individual defendants, sixty-nine American corporations, and two English corporations. The decree of the court not only swept away the interpretation of the anti-trust law by the lower court, but, also, reversed its interpretation of the facts. The higher court found the Tobacco Trust unlawful "not only because of the dominion and control over the tobacco trade which actually exists," but because "the conclusion of wrongful purposes and illegal combination is overwhelmingly established by the undisputed facts of the evidence."

The court reviewed the history of the combination. It pointed out that during sixteen years, from 1890, continuous and unrelenting efforts had been made to effect a close consolidation and control of the tobacco business; and that this had been attended by "fierce and abnormal" competition. Thus in a single year (1908) the company suffered a deliberate loss of four million dollars in order to ruin or coerce obstinate rivals. This particular war involved control of the plug tobacco trade and resulted in the formation of the Continental Tobacco Company with seventy-five million dollars capital. In this branch of the business, as in others, many plants were bought only to be permanently closed. Similar circumstances attended the acquisition of control over the snuff branch of the industry. Since 1904 the company was believed to have as complete a monopoly as is

possible in any large modern business. It had control, not only of the market in cut tobacco and plug tobacco, cigarettes, chewing tobacco, and snuff; but it engaged in the licorice business and the manufacture of tin foil; it made boxes, briar pipes, and smokers' supplies; and otherwise showed an undoubted determination to control all business in any way within its sphere of influence. In the entire process of consolidation the court declared that deceit and concealment were used and statements made designed "to mislead, deceive and defraud the public and more effectually to cripple existing competitors and keep out new ones." It recounted how the combination had in some localities reduced prices below the cost of production in order to drive out a competitor; and elsewhere had raised the price of raw tobacco to such a point that other competitors were stifled.

Coming to the interpretation of the law the court said: "Although it was held in the Standard Oil case that, giving to the statute a reasonable construction, the words 'restraint of trade' did not embrace all those normal and usual contracts essential to individual freedom the right to make which was necessary in order that the course of trade might be free, yet, as a result of the reasonable construction which was affixed to the statute, it was pointed out that the generic designation of the first and second sections of the law, when taken together, embraced every conceivable act which could possibly come within the spirit or purpose of the prohibitions of the law, without regard to the garb in which such acts are clothed." That the undisputed acts performed by this company were prohibited by the statute was deemed by the court too clear for argument. Thus it held "the history of the combination is so replete with the doing of acts which it was the obvious purpose of the statute to forbid, as shown by its manifest purpose to acquire monopoly by its unusual and ruthless methods of driving competitors out of business that the conclusion is inevitable that wrongful purposes and illegal combinations are overwhelmingly established."

The court then laid down as guides for its action: (1) The duty of giving complete and efficacious effect to the prohibitions of the statutes; (2) the accomplishing of this result with as little injury as possible to the interests of the general public, and (3) a proper regard for the vast interests of private property." Having made a sweeping condemnation of the consolidation, the court took special pains to insure the carrying out of its decree in such a way that the spirit of the Sherman law should be complied with. The decree was as follows: "(1) That the combination in and of itself, as well as each and all of the elements composing it, be decreed to be in restraint of trade. (2) That the court below be directed to hear the parties, for the purpose of ascertaining and determining upon some plan or method of dissolving the combination and of recreating a new combination which shall be honestly in harmony with and not repugnant to the law. (3) That for the accomplishment of these purposes a period of six months is allowed with leave to extend such period to a further time not to exceed sixty days. (4) That in the event, before the expiration of the period thus fixed, a condition of disintegration in harmony with the

law is not brought about, it shall be the duty of the court either by way of an injunction or by the appointment of a receiver to give effect to the requirements of the statute."

DISSOLUTION. The reorganization of the Tobacco Trust was, in several respects, more difficult than that of the Standard Oil Company. The latter was a simple holding company, whereas the American Tobacco Company not only included holding companies, within a holding company, but (a) to a considerable extent it owned properties and conducted business directly; (b) in some cases it controlled former independents on contracts not to compete; and (c) in other cases it controlled trade by contracts for the division of business between it and its former competitors. The extent of its control over the various branches of business is approximately indicated by the following percentages: Cigarettes 81 per cent., smoking tobacco 78 per cent., plug tobacco 82 per cent., fine cut 79 per cent., cigars 13 per cent., snuff 90 per cent., and little cigars 93 per cent. The plan for the dissolution of the trust, as prepared by the attorneys for the company, was modified in various respects before the issue of the final decree late in October, setting forth the approved plan of reorganization. This plan provided for the recreation of the American Tobacco Company and the formation of two new companies to be known as the P. Lorillard Company and the Liggett and Myers Tobacco Company. These three, with their J. B. Reynolds Tobacco Company, were to control the domestic business of the trust in the manufacture of smoking and chewing tobacco, cigars, and cigarettes. The plan provided for the issue of new securities by the two new companies and set forth the ratios of exchange which would prevail between the bonds and preferred stocks of the trust and bonds and preferred stocks of the new companies. Thus the stock of the Reynolds Company was to be directly distributed to the common stockholders of the trust. The common stock of the Liggett and Myers and the Lorillard companies was to be sold at par for cash to the same stockholders. The holders of the 6 per cent. bonds of the trust were to exchange them one-half at 120 for cash and the other half at par for the 7 per cent. bonds of the two new companies; and holders of the 4 per cent. bonds of the trust were to exchange them one-half at 96 for cash and the other half at par for the 5 per cent. bonds of the new companies. The cash thus needed to retire the trust bonds were to be derived from the proceeds of the sale of common stock of the two new companies as already noted. The reformed American Tobacco Company would thus have no funded debt but would have \$52,459,400 preferred and \$40,260,000 common stock. Though the common stockholders in all companies would be the same at first, each stockholder having an equal share in each of the four principal concerns, this was expected to be changed soon by the disposal and recombination of many of the part shares into which the stocks had to be split to effect the distribution. The decree limited to 40 per cent. the proportion of any business to be controlled by any one of those concerns. It enjoined the twenty-nine principal "insiders" from increasing their stock control within five years.

The decree provided for the separation of ten other companies. Thus it ordered the distribution to trust stockholders of the stocks of the

American Snuff Company and its two subsidiaries, the George W. Helme Company and the Heyman & Bruton Company; of the Conley Foil Company and its subsidiary, the Johnston Tin Foil and Metal Company; and of the MacAndrews and Forbes Company (licorice paste manufacturers) and its subsidiary, the J. S. Young Company, all owned by the trust. Similarly, were to be distributed two-thirds of the stock of the United Cigar Stores Company, the stock of the Porto-Rican-American Tobacco Company and the two-thirds of the stock of the British-American Tobacco Company owned by the trust. Certain other companies passed through more complicated transfers and dissolutions. The contracts between the trust and the British Imperial Tobacco Company and the British-American Company, whereby they were prevented from invading the American market, were terminated.

The court held that it could not grant the government power to intervene at any time within five years, as was asked by Attorney-General Wickersham. It did, however, prohibit loans by one company to another and ordered the preservation of the books of the American Tobacco Company for use in case of further litigation.

The attorneys of the trust admitted that the four companies among which the large domestic business was to be divided had stockholders in common. It was not believed by the government experts in the tobacco industry, nor by independent tobacco concerns, nor by financiers that the reorganization would have any appreciable effect on the monopolistic control of the tobacco industry, because the stock control of the various principal concerns was left in the same hands. The independents felt sorely grieved at the outcome. They had in various ways endeavored to have the case re-opened; or to have the court decree modified so as to bring about a more effective widespread dispersion of control. The Circuit Court dismissed these petitions, principally on the ground that the independent companies, not being parties to the main suit, were not entitled under the law to become parties to a petition for a rehearing. The independents then demanded a modification of the Sherman act so as to give independent competitive concerns certain rights of action in proceedings under that law. Such an amendment was before the Senate Committee on Interstate and Foreign Commerce at the close of the year; this was, in fact, designed to permit the independents to appeal from the decree dissolving the trust.

REPORT OF BUREAU OF CORPORATIONS. This bureau had been conducting an extensive inquiry into the history, organization, and monopoly power of the Tobacco Trust for many months. In a report issued early in October, Commissioner Herbert Knox Smith set forth the amounts of the different branches of the tobacco business in this country controlled by the combination, these being about the same as the percentages given above. The profits for the four years 1904-8 were shown to be \$31,250,000, or nineteen per cent. on the capitalization. The report showed that the stock of the Snuff Company, originally all water, paid twenty-seven per cent. dividends, this being mainly due to the monopoly power obtained through the control of ninety-six per cent. of the snuff trade; in the smoking-

tobacco branch profits increased to fifty-five per cent. in 1908; but in the cigar branch profits never went above nine per cent. The commissioner pointed out that prices were raised after the Spanish-American War taxes were imposed, but were not lowered after the war taxes were removed. He laid great stress also on the excessive over-capitalization of the combination. He estimated that not less than \$84,000,000 out of \$148,000,000 entered into the capitalization as "good will" was beyond any doubt excessive capitalization. Moreover, he stated that by skillful and frequent readjustment of the securities of the combination a relatively small inside group had been able to secure for themselves a very large part of the earnings.

AMHERST COLLEGE. An institution of higher learning at Amherst, Mass., founded in 1821. The number of students enrolled in the several departments of the college in 1910-11 was 465. The faculty numbered 47. There were no notable changes among the members of the faculty during the collegiate year. Benefactions to the amount of \$420,000 were received, and the productive fund amounted to \$2,200,000. A dormitory, given by Mr. and Mrs. Charles M. Pratt, as a memorial to their son, Morris Pratt, was in process of erection during the year at a cost of \$150,000. Considerable discussion arose from the decision of the college in regard to classical studies. The class of 1885 issued an address on the subject, which attracted wide attention. For a discussion of the matter, see **UNIVERSITIES AND COLLEGES**. The library contains about 100,000 volumes. The president in 1911 was George Harris, LL. D.

AMIBURUS. See **ZOOLOGY**.

AMMONIA, MANUFACTURE OF. See **CHEMISTRY, INDUSTRIAL**.

AMMONIUM SULPHATE. See **FERTILIZERS**.

AMUNDSEN, ROALD. See **POLAR RESEARCH**.

AMPHIBIA. See **ZOOLOGY**.

ANÆMIA, MINERS'. See **HOOKWORM DISEASE**.

ANÆSTHESIA. Very few new methods of administering general anæsthesia were introduced during 1911, greater attention being paid to developing a safe technic by the ordinary methods. Hagemann, however, reviews the experiences at the König surgical clinic in Greitawald, with intravenous injections of ether. Eleven cases were thus anæsthetized. This technic was used in patients requiring operations on the mouth or face or on account of extreme weakness. The ether was prepared by mixing with cold water and gradually warming over the water bath to 100.4 F. and keeping the fluid at this temperature until all excess of ether evaporated and a 4.68 per cent. solution was obtained. From 1050 to 3920 c.c. of the solution were infused. There was no sign of thrombosis or embolism and Hagemann thinks the method is free from danger. The infusion of such large amounts of fluid was found to be of great advantage in much debilitated patients. The pulse was never weaker, but often stronger after the anæsthesia, and there was no thirst. Gwathmey of New York has devised an inhaler by which ether anæsthesia can be robbed of all unpleasant effects. Its vapor is first passed through cold water, which washes out the aldehydes, and then it is passed through water of the temperature of the body. When administered in this way to a patient already anæsthetized by nitrous oxide

gas, subsequent nausea is of very rare occurrence.

ANAPHYLAXIS, or SERUM SICKNESS. This phenomenon was first remarked in 1903, by Dr. Theobald Smith, of Boston, in certain individuals after repeated doses of antitoxin. As the result of a great amount of work devoted to the subject, anaphylaxis is now considered merely a phase of immunization and is being used to explain other more obscure phenomena of disease. The *Journal of the American Medical Association* summarizes the present conception of anaphylaxis as follows:

"On the introduction of the first dose of a foreign proteid into an animal, there occurs a gradual increase of the antibodies for this substance—antibodies already present in small amounts normally. If, now, after a suitable interval, say from eight to ten days, a second dose be given, these antibodies, now present in increased quantities, produce a rapid disintegration of the proteid, with liberation of toxic products. If the animal survives this sudden liberation of poisonous material, farther cleavage of these products rapidly renders them innocuous.

"Such a hypersensitization to foreign proteids is peculiar in that for the most part it is necessary to introduce them by some route other than the alimentary canal. When, however, we consider the great breaking up undergone in the process of digestion, it will be readily seen that any characteristic peculiar to a given proteid would ordinarily be so modified before absorption as completely to alter any toxic effect that it might possess. Indeed, the anaphylactic reaction is believed to be due to a splitting up of the proteid into exactly the products it would yield in intestinal digestion; the poisonous intermediate products, however, which in the latter case would undergo still farther cleavage before entering the system, are in the former liberated directly into the blood-stream, and so are free to exert their toxic action. In support of this view is the fact that in those cases in which there is excessive antibody formation, the acute anaphylactic reaction is diminished or absent; the probable explanation being that the breaking up of the proteid into its ultimate constituents is so rapid as to prevent the accumulation of toxic intermediate products in quantities sufficient to do harm. Idiosyncrasy to articles of food is to be explained, on this basis, by the absorption of sufficient unmodified proteid to react with antibodies already present, either congenitally or formed under similar previous conditions. In addition to the "active" anaphylaxis, produced by the direct administration of sensitizing doses of proteid to the animal organism, it is possible to produce "passive anaphylaxis" by transferring hypersensibility to other animals with the serum of treated animals. This so-called passive anaphylaxis belongs to the same class as passive immunization. Further analogy is shown by the necessity of free complement to produce the reaction. If an animal be given its second dose of proteid, in nonlethal amount, at an interval greater than the ten days at which hypersensitization reaches its height, the excess of antibodies present becomes bound, and the animal becomes relatively free from further reaction. This is the so-called anti-anaphylaxis."

ANARCHISTS. See JAPAN, *History*.

ANDRADE, CIPRIANO. A rear-admiral, re-

tired, of the United States navy, died June 19, 1911. He was born at Tampico, Mexico, in 1840 and was educated in public and private schools in Philadelphia. He studied engineering and in 1861 was appointed third assistant engineer in the United States navy. He served throughout the Civil War, rising to the rank of first assistant engineer. In 1881 he was promoted to be chief engineer with the relative rank of commodore. He was made captain in 1898 and rear-admiral and retired in 1901. He took part in various engagements in the Civil War and afterwards in active service as engineer officer of the navy. He took part in the Spanish-American War. He was a member of many military and scientific societies.

ANGELL, HENRY CLAY. An American ophthalmologist, died May 27, 1911. He was born in 1830 and graduated from the Hahnemann Medical College in 1853 and after three years of study in Vienna began practice as an eye specialist in Boston. He was for twenty years professor of ophthalmology in the Boston University Medical College. He was the author of several technical works on the eye. He was interested in music and in 1882 was president of the Philharmonic Society.

ANGLO-AMERICAN ARBITRATION. See ARBITRATION, INTERNATIONAL; and GREAT BRITAIN.

ANGLO-FRENCH AGREEMENT. See MOROCCO, *History*.

ANGLO-GERMAN AGREEMENT. See MOROCCO, *History*.

ANGLO-JAPANESE AGREEMENT. See JAPAN, *History*.

ANGOLA. A Portuguese colony in western Africa. Estimated area, 500,000 square miles, divided into the districts of Congo, Loanda, Benguella, Mossamedes, Huilla, and Lunda. Population, between three and four millions. Capital, St. Paul de Loanda. Imports (1909), 5,674,861 milreis; exports, 3,485,085; transit trade, 326,349. Vessels entered (1909), 1741, of 1,005,000 tons. Railways open, 821 kilometers; telegraph lines 3708, wires 3989, number of offices 65; telephone lines 654, wires 781; post offices, 436. Revenue (1909-10), 2,321,373 milreis; expenditure, 3,171,373. Governor-general (1911), Lieut.-Col. Alves Rodadas.

At the beginning of November the negroes of the Mexico districts were reported to be in revolt and pillaging the property of the Europeans, and on November 7 the governor announced to the home authorities that he was dispatching a strong force to restore order. See SÃO THOMÉ.

ANKYLOSTOMIASIS. See HOOKWORM DISEASE.

ANHALT. See GERMANY.

ANNAM. A French protectorate in French Indo-China (q. v.). Area, 61,718 square miles. Estimated population, 7,994,425. Capital, Hué (65,000 inhabitants). Paddy, rice, corn, cotton, coffee, timber, rubber, cardamoms, betel, tobacco, etc., are raised; the mines yield kaolin, coal, lead, zinc, copper, iron, gold, and silver. The trade is included with that of French Indo-China. Railways open (1910), 511 kilometers. The local budget balanced (1911), at 2,931,910 piastres. There is no debt. Reigning king (1911), Duy-Tan. French resident-superior, J. H. Groleau (H. Sestier, acting).

ANNIVERSARIES. See EXPOSITIONS.

ANTARCTICA. See POLAR RESEARCH.

ANTARCTIC EXPLORATION. See POLAR RESEARCH.

ANTERIOR POLIOMYELITIS. See INFANTILE SPINAL PARALYSIS.

ANTHRAX. See VETERINARY SCIENCE.

ANTHROPOLOGY. The discussions of recent years have culminated in 1911 in a number of significant utterances on the fundamental problems of ethnology. Dr. Rivers' address on *The Ethnological Analysis of Culture* indicates an interesting change of attitude on the part of British ethnologists, inasmuch as this investigator fully recognizes the necessity of detailed historical study before attempting a generalized scheme for the evolution of culture on the basis of psychological similarity the world over. A similar point is urged with even greater emphasis in Dr. Graebner's *Methode der Ethnologie*, where a systematic discussion is given on the logic of ethnological research. Ethnology is treated as a distinctly historical science devoted to the ascertainment and comprehension of individual facts, as opposed to the natural sciences, which seek to formulate general laws and disregard individual variations. The most distinctive feature of the work is the author's insistence that all similarities of culture, with the exception of such resemblances of objects as are a consequence of the material employed in their manufacture, are due to historical connection. Graebner thus rejects both Bastian's theory that cultural resemblances may be due to the psychical unity of mankind and Ehrenreich's principle of convergent evolution. *The Mind of Primitive Man*, by Professor Boas, likewise voices a protest against the theory that there is a general course of cultural development and is to that extent in accord with the position held by Graebner. The main subject of the book, however, is an inquiry into the mental characteristics of primitive man and into their possible correlation with racial differences. Boas dismisses the theory that differences in cultural achievement are founded in hereditary racial differences, because the progress of civilization is dependent on other, historical causes. Similarly, it cannot be shown that the anatomical traits of races with the highest culture are phylogenetically higher than those of people of a lower cultural stage. Psychologically, all the traits popularly denied to primitive humanity—such as inhibitory powers, reasoning ability, or attention—are undoubtedly common to all mankind, though evinced on different occasions by different people. Emotional associations of habitual activities and the invention of rationalistic explanations are characteristic of primitive life. The transition to civilization involves a diminution of the emotional associations. It does not effect a change in the psychologically automatic character of individual activities in conformance with established custom, but rationalizes conduct solely by rationalizing the customs themselves which serve as a norm of action.

PHYSICAL ANTHROPOLOGY. As a result of recent examination of crania of the Southampton Island and the Smith Sound Eskimo, Hrdlicka finds an unexpectedly close relationship between these two branches of the Eskimo people. The type represented by these natives is distinguished by large cranial capacity and a high facial index, the face being extraordinarily large even for the Eskimo. Hrdlicka regards the kind and quantity of food as the main factor in the differentiation of the Eskimo cranial type; this

applies particularly to the great development of the temporal muscles and other muscles of mastication. Climatic agencies probably affected the size of the cranial cavity or brain, as well as the narrowness of the nasal aperture. Owing to the rarity of pronounced dolichocephaly, any considerable blood relation, in recent times, with the Eskimo of Labrador and Lower Greenland seems improbable. Most important of all, Hrdlicka corroborates the view that the Eskimo, as a unit, present no affinities with diluvial or posterior European man, but only with the natives of Asia and America.

OMAHA. Under the auspices of the Bureau of American Ethnology, Miss Fletcher and Mr. La Flesche have published a monograph on *The Omaha Tribe*, which adds considerably to our knowledge of the clubs and secret organizations of this people. Of the former, the most important were the Hethushka and the Pugthon. While the latter embraced only chiefs, anyone might join the Hethushka that had won public war honors. The Thunder was the tutelary deity of this society, and all its members were fastened to the back of their belts a long bunch of grass representing scalp, whence the name of "Grass Dance" under which their performance has become known among other Plains tribes. Several of the secret societies were based on the individual relations of the members to certain animals, entrance being dependent on a supernatural revelation from one of the creatures in question. Two organizations, the Shell and the Pebble society, shared the shamanistic practice of ceremonially "shooting" members by the magic power of the objects for which the societies were named. This trait is of comparative interest as it exhibits a partial resemblance with the Midewiwin of the Central Algonkin and Winnebago. The Shell society also held secret meetings for the purpose of punishing offenders through the power of their magic. A rough representation of the criminal was drawn on the ground and one of the members shot an arrow into the heart of the figure, thus compassing the person's death.

BLACKFOOT. Wissler has given us a study of *The Social Life of the Blackfoot Indians*. In view of the never-ceasing discussions on the nature of the clan and exogamy, Wissler's conclusions on this subject are of general importance, especially as both Grinnell and more recently Uhlenbeck have conceived the Blackfoot bands as genuine exogamous clans. This, according to Wissler, is not the case. To marry within the band is not criminal, but merely bad form. The fundamental idea is that blood relationship should constitute a bar to marriage. If members of the same band not related desire to wed, marriage is permitted, though with some reluctance, owing to the suspicion that they may after all be related by blood in some obscure way. All the bands have nicknames such as occur among neighboring tribes; of totemism not a trace has been found. On the other hand, the band exercises important political and social functions. To a certain extent the band as a unit is responsible for the acts of the individual, and in cases of crime all members are required to contribute to the payment of indemnities and to shield a member guilty of murder. Descent of band name is in the paternal line. The close correlation between bands and a camp circle found among several Plains tribes does not exist among the Blackfoot. Indeed, the camp circle

does not seem to be of fundamental significance, the relative position of the bands is apparently subject to the suggestions of the leading men, and in the Piegan branch the circle was never formed except during the sun dance and related ceremonial observances.

WINNEBAGO. In *The Ritual and Significance of the Winnebago Medicine Dance*, Dr. Paul Radin discusses on the basis of material collected by himself the important ceremony otherwise known as the Midewiwin. He finds that the similarities in the ceremony as found among the Ojibwa, Menomini, Omaha, and Winnebago are reducible to two common features—a shooting ritual and an initiation ritual. The shooting ritual is merely one phase of sympathetic magic, which has entered a different combination in the case of the Winnebago and Omaha societies from that found among the Ojibwa and Menomini. A study of the initiation ritual confirms the difference. While the Central Algonkin initiation is really an individual admission into the status of a shaman rather than an initiation into a society, the Winnebago Medicine Dance requires a definite initiation ritual. This initiation feature, however, must be considered intrusive, as it is lacking in other societies of the same tribe, and has merely been secondarily associated with the basic ritual of the ceremony. As a matter of fact, each of the ceremonial complexes investigated is to a large extent the product of a few features common to all of them with the specific cultural setting of the tribe in question. In the demonstration that ceremonial complexes are largely the result of secondary association lies one of the significant theoretical points of the paper. In addition Radin shows that Schurtz's scheme of social evolution does not accurately represent the facts. Certain widespread ideas connected with societies which Schurtz regards as identical the world over cannot be thus interpreted. Thus, initiation is not necessarily associated with puberty, degrees are not always symptomatic of age classes, the exclusion of women from organizations may be due not to the absence of their social instinct, as Schurtz contends, but to the sexual division of labor characteristic of each area. Societies then cannot be studied apart from their specific cultural surroundings.

ARCHAEOLOGY. As the result of twenty-two years' exploration under the direction of Professor Putnam, Mr. Ernest Volk has published *The Archaeology of the Delaware Valley*, which has an important bearing on the antiquity of man in the New World. The strata investigated may be divided into three layers—the black soil extending from the surface downwards, the yellow deposit or drift underlying this black soil, and the stratified gravel and sand older than the yellow drift. In the black soil of the Trenton terrace and lowlands numerous graves and pits were examined. The condition of the burials indicates considerable differences in the time of interment, while corresponding cultural differences appear in the stone implements, pottery, and style of decoration occurring in the pits associated with the graves. In the yellow soil, which was laid down during, or at the close of, the last glacial epoch, Mr. Volk found quartzite pebbles broken by fire or fracturing and argillite artifacts representing projectile points and tools with a jagged edge for cutting or scraping. In addition to these finds, there have been unearthed skeletal human remains deposited, prob-

ably by natural causes rather than by intentional burial, contemporaneously with the artifacts. In the Trenton gravel beneath the yellow drift Mr. Volk discovered chipped quartz, quartzite pebbles broken by fire and fracturing, bones of the musk-ox and the elk, as well as fragments of a human cranium and part of a human femur, which shows evidence of having been cut and worked by man. As these remains were found isolated and in stratified gravel, Mr. Volk concludes that they were a part of the gravel in which they were found, had been in or on some original gravel deposit, had been dislodged with it, and finally been redeposited with it. There is thus evidence for the existence of man at the time of the glacial deposits of the Delaware Valley.

Smith's paper on *The Prehistoric Ethnology of a Kentucky Site* is important as a contribution to the methodology of archaeological work and as an illustration of the way archaeology is correlated with ethnology. The author discusses the finds made in the Fox Farm, Mason county, Kentucky, from the standpoint of an ethnologist describing a primitive tribe of to-day, at least so far as the imperfection of the archaeological record permits. Thus the presence of charred specimens of corn and beans and of various animal remains, such as bones of deer and elk, yield evidence of the plant and game food used, while bone fish hooks and impressions of nets on pottery prove that the inhabitants of the site were fishermen as well as hunters and agriculturists. What implements were employed in agricultural work remains doubtful, as stone celts and oblongs possibly serving this purpose fail to reveal the polished edges caused by such use. Possibly all agricultural work was done by means of digging-sticks. In corresponding fashion, Smith discusses other aspects of culture, such as the preparation of food, men's and women's tools, dress, art, and modes of burial. The entire paper brings out with great clearness the advantages and disadvantages of archaeological, as compared with ethnological, investigation. The chief advantage lies in the definiteness of the objects of study, which affiliates archaeological research more closely with such natural sciences as paleontology. A serious disadvantage results from the fragmentary nature of the evidence. Thus, on the Fox farm there were not discovered any remains of habitations, and no pestles or mortars were found, though they occur in other sites of the region and can therefore not be supposed to have been unknown to the prehistoric natives of the locality studied. Smith's investigations indicate that the site represents Mills's "Fort Ancient Culture," and fell within the culture area of the Ohio valley.

In *A Study of Chiriquian Antiquities*, Professor MacCurdy makes a notable contribution to our knowledge of the archaeology of Panama. Except for the inferiority of its architecture, the stone art of this region is found to compare favorably with that of Mexico and Peru. Among the products of Chiriquian craftsmanship pottery, however, occupies the most conspicuous place. MacCurdy distinguishes painted and unpainted earthenware, and a considerable number of sub-groups, of which certain types characterized by decorative animal motives are the most interesting. Most common among these is the armadillo motive, which is associated with plastic art, while the alligator motive and its derivatives are executed in color. By conven-

tionalization these motives resulted in various decorative patterns, such as meanders or scrolls. Painted decoration was of three kinds from the standpoint of technique. In one form the figure was produced by the direct application of colors. The second "lost color" process consisted of tracing the design in wax, applying a solid coat of black over the decorated field, and plunging the vessel in hot water, which melted the wax and left the design in the color of the original ground. The third, relatively rare, method was to spade the figure out of the ground. Metallurgy flourished in ancient Chiriqui, and is exemplified by numerous gold plaques and figurines. Most of the images are simple or composite animal forms and are interpreted by MacCurdy as representations of deities. The culture area of which the antiquities are products includes not only the present province of Chiriqui but probably a portion of Costa Rica.

ASIA AND OCEANIA

VEDDAS. A standard work on *The Veddas* has been published by Dr. and Mrs. Seligmann, who are the first to describe in a systematic manner the social and religious life of these aborigines of Ceylon. The Veddas are divided into a number of exogamous clans with maternal descent; some of the clans are regarded as inferior to others, and their members are obliged to perform menial services for those of higher status. The social life of the wilder Veddas centres round the crude rock-shelters which serve as the dwelling-place of single families or groups of families. In the latter case, each family is rigidly confined within definite limits, but the men's bows and arrows are stored in a communal depository. Both sexes enjoy equal rights. The men hunt game, while the women dig yams. Marriage is monogamous, and conjugal fidelity is preserved in the highest possible degree. The marriage of first cousins, provided their parents stand in the relationship of brother and sister to each other, is the normal thing, but the union of children of two brothers or two sisters is regarded as incestuous. The widespread custom of avoidance between mother-in-law and son-in-law is rigorously observed by the Veddas; on the other hand the relationship of a man with his father-in-law is peculiarly cordial and intimate, generally surpassing in intimacy that between father and son. The sense of ownership is well developed, both with regard to the hunting grounds of territorial groups of Veddas and with respect to personal belongings. While the descent of clan names is matrilineal, property is inherited from the father, though the sons-in-law of the deceased also have some claim on the inherited articles.

While magical practices are not very conspicuous, the religion of the Veddas is marked by a fair degree of complexity. It centres in a cult of the dead, that is, of both the immediate ancestors of the people and certain legendary heroes, one of whom figures as the Lord of the Dead. To these supernatural beings the Veddas make ceremonial offerings of food, and on this occasion they are invoked to grant success in the chase or some other token of their loving-kindness. In each community there is an officiating shaman, whose function is to become possessed by the spirits, who speak through him, expressing their approval of the offering and promising assistance. This primitive stratum

of religion has been overlaid by Sinhalese accretions, foreign spirits having been adopted as friendly deities or remaining in their unassimilated alien form as hostile demons.

The general conclusion of the Seligmanns, both from the physical peculiarities and from the cultural characteristics of the Veddas, is that they represent the aboriginal inhabitants of Ceylon and form a part of the so-called Dravidian Jungle tribes of southern India.

BORNEO. Gomes has published important data on the religious customs of the Sea Dyaks. The principal deities of this people are Singalang Burong, the war god, who is represented by a carved and colored bird; Pulang Gana, who presides over rice-farming; and Salampandai, the maker of human beings. In honor of Singalang Burong the Dyaks celebrate feasts after the capture of enemies' heads, which are preserved as trophies, while a series of ceremonies connected with farming is dedicated to Pulang Gana. Besides the three principal deities, the natives also believe in a large number of minor spirits, whom they supplicate in lonely places for success in war or recovery from disease. Evil spirits cause sickness, and must be overcome by the aid of *manangs*, that is, medicine-men. According to Dyak pathology, the spirit snatches away the patient's soul, and it is the *manang's* business to pursue and retrieve it through the aid of his own familiar spirit. There are several grades of *manangs*; the highest of these bears a curious resemblance to the berdache institution of the North American Indians, in that these medicine-men, obeying a dream or supernatural order, assume feminine garments and thereafter conduct themselves as though they were women. The great reliance placed in omens—more particularly, in the cries and flight of certain birds—is a further characteristic of Dyak religion.

HAWAII. Under the native title *Ka Hana Kapa*, Brigham has given us the first thorough study of Hawaiian bark cloth. Significant differences from the tapa of other Polynesian tribes are noted. The mallets for pounding the bark in Hawaii are of two types—one with round section for preliminary treatment, the other with square section for completing the process. The mallets of the second type are carved with shark's tooth implements, the patterns leaving impressions on the beaten cloth, which become visible when viewed by transmitted light. While the Samoans and Fijians decorated their tapa with stencils made of carved plaques or of leaves with designs sewed on them, the natives of Hawaii almost always used stamps of bamboo stalks carved at one end. Only in very rare instances stamps were of wood or tortoise-shell. The dyes were prepared from charcoal, most frequently obtained by burning nuts. As compared with the decoration typical of other Polynesians, the Hawaiian tapa is lacking to a remarkable extent in realistic patterns; practically all the designs are purely geometrical, and symbolical interpretations are conspicuous by their absence.

AFRICA

BAKUBA. Under the title *Les Bushongo* Messrs. Torday and Joyce have given the first detailed account of the Congolese people more commonly designated as "Bakuba." The Bushongo nation is composed of a considerable num-

ber of tribes, of which the Bambala are the most prominent—all subject to a single sovereign residing in Mingenja, the capital, which is situated between the Kasai and Sankuru rivers. A politically independent section of the Bushongo inhabits the region to the east, about the town of Lusambo. From the very elaborate traditions of the natives, which comprise tales of migration, accounts of the origin of various crafts and customs, and records of over a hundred kings, the authors extract the historical conclusion that the Bushongo are immigrants from the north-north-west and have adopted a Bantu tongue in very recent times. A brief vocabulary of the ancient Bambala dialect shows some affinity with the languages of the Shari Basin (Lake Chad district). This conclusion seems to be confirmed by the recollection of the throwing-knife as a weapon.

The governmental institutions of the Bushongo reveal a remarkable development. The king is surrounded by six ministers representing the administrative provinces of the realm, as well as by many other dignitaries with military or judicial functions, representatives of the tradesmen's guilds, and the like. The king's power is to a certain extent limited not only by these councillors and the people at large, but also by his mother, who in some respects takes precedence over him. Inheritance of the throne is in the female line. The character of the Bushongo court is typically African, as is also the occurrence of the poison ordeal to test the guilt of a supposed murderer.

Though inheritance of property follows, like that of the throne, the female line, women themselves cannot inherit anything. Taboos against eating certain animals characterize each of a number of social groups into which the Bushongo are divided. The taboos are passed on from father to son. There is no religious idea connected with these regulations, for it is even permissible to kill the animal prohibited as food. On the other hand, men and women sharing the same taboo were apparently formerly debarred from intermarriage.

Among the social customs a two-fold initiation ceremony stands out prominently. At eight or ten, the king's son, together with boys of the same age, is incarcerated for nine days in an enclosure in the brush. During this period they are instructed in the tribal code of morality. The second initiation takes place at puberty. For a month the young men must live in the woods, divested of all clothing or personal decoration save a comb, and terrified every night by the buzzing of a bullroarer, which they take for that of ghosts. At the end of the month they are subjected to bravery tests by the masqueraded elders, and, after several payments, are permitted to adopt the cap indicative of maturity. In the Bangongo branch of the nation police powers are wielded by a powerful secret organization. The members were distinguished by a rattan eyeshade, and three officers wore wooden masks. Initiation of novices was heralded by the sounding of a friction-drum, to which human sacrifices were formerly offered.

There is a theoretical belief in a powerful creator, Chembe, but religious practice is largely confined to the fetich performances of the shamans. These fetich performers have specialized functions, some insuring good luck in war or the chase, others divining methods for treating patients or identifying of thieves.

SUDANESE NEGROES. A discovery of far more than purely philological interest has been recorded by Westermann in his monograph on Sudanese tongues. While the Sudanese Negroes have been commonly represented as revealing an almost indefinite linguistic differentiation, especially as compared with the Bantu stock which covers the larger part of southern Africa, Westermann shows that they too form but a single family of genetically related languages. The territory occupied by this family includes that geographically designated as the Budan, from Senegambia to western Abyssinia, but embraces in addition several enclaves in East Africa, such as that of the Kavirondo. In some portions of this immense area the language has been affected by that of neighboring Bantu and Hamitic tribes, but certain fundamental traits stand out clearly in all of them. Among these is the monosyllabic character of verbs, from which nouns are derived by prefixing a vowel. Where polysyllabic forms occur they can be explained either as due to composition from monosyllabic roots and affixes, or as terms borrowed from foreign tongues. Another highly characteristic and quite general trait of Sudanese is the analysis of every action into all its component parts, each of these being expressed by a separate verb coördinate with all the other verbs of the sentence.

Roscoe's book on *The Baganda* supplements former publications mainly as to the social organization of the tribe. The Baganda are divided into thirty-six clans, the members of each of which regard themselves as descendants of a common ancestor and hold sacred the same totem, of which every clan has two. With one exception the clans are exogamous. Each clan has special names for the children of its members, so that the personal name was an indication of an individual's clan affiliations. The clans are subdivided into branches and into still smaller groups, each presided over by a headman. While descent is ordinarily reckoned in the paternal line, princes belong to their mother's clan. Not all the clans enjoy the same social status. Some are regarded as quite inferior, or at least are never allowed to present a candidate for the throne. Most of the clans have specific functions, some acting as purveyors of the king or supplying the custodians for royal emblems and the priests of certain deities. The members of a clan always abstained from partaking of the flesh of their two totems, but they do not interfere with the destruction of the totems by members of other clans.

SOCIETIES AND EXPEDITIONS. The First Universal Races Congress was held in London, July 26-29, 1911 (president, Lord Weardale; secretary, G. Spiller). Its object was to promote a fuller understanding and better feeling among the races of the globe, and the anthropological and sociological questions involved were discussed at length. In September the British Association for the Advancement of Science met in Portsmouth, and Dr. Rivers, the president of the Anthropological section, delivered the momentous address noticed above. The American Anthropological Association (secretary, George Grant MacCurdy) and the American Folk-Lore Society (secretary, Charles Peabody) met in Washington during Christmas week. There were symposia on the influence of physical environment on culture and on the unity or diversity of the New World race and culture.

The Bureau of American Ethnology conducted linguistic researches among the Algonkin (Dr. Michelson) and the tribes of Oregon and Washington (Dr. Frachtenberg), while Dr. Radin and Dr. Swanton resumed their ethnological work among the Winnebago and Creek respectively. The Bureau has published a bulletin by Dr. Swanton on *Indian Tribes of the Lower Mississippi Valley* and two others by Dr. Fewkes on the *Navaho National Monument, Arizona* and the *Antiquities of the Mesa Verde National Park*, as well as the monograph on the Omaha mentioned above. The American Museum of Natural History supported fieldwork among the Menomini (Mr. Skinner), Teton Sioux (Dr. Wissler and Dr. Walker), Cree (Dr. Goddard), Crow, Hidatsa, and Mandan (Dr. Lowie and Mr. Wilson), Rio Grande Pueblos (Dr. Spinden) and Kiowa Apache (Dr. Goddard). In behalf of this institution Mr. Stéfansson continues work among the Eskimo of the Mackenzie River region, and Miss Kissell completed her textile studies among the Pima and Papago of the Southwest. The School of American Archaeology conducted excavations in Quirigua, Guatemala, and in the southwestern part of the United States. Dr. Speck of the University of Pennsylvania has continued work on the Penobscot, and Miss Sebbelov, of the same institution, visited the Osage. The University of California continues its linguistic and ethnological reconnaissance of that State (Dr. Kroeber, Mr. Waterman). Under the auspices of the new Canadian Department of Ethnology, Dr. Sapir visited some of the eastern Canadian reservations, Dr. Goldenweiser the Iroquois, and Mr. Barbeau the Wyandot.

ANTI-BOYCOTT ASSOCIATION, AMERICAN. See **BOYCOTT**.

ANTIGUA. A West Indian island which, together with Barbuda and Redonda, forms a presidency of the Leeward Islands (q. v.); the colonial seat of government. Area: Antigua, 108 sq. miles; Barbuda and Redonda, 62½. Population (1901): Antigua, 34,178; Barbuda, 755; Redonda, 120; total in 1911, 32,265, of whom 13,989 males and 18,276 females. Birth-rate (1909), 32.55, death-rate 27.38 per thousand. Illegitimate births, 72.90 per cent. Capital, St. John, with 7910 inhabitants (1911). Area under sugar-cane in 1908, 15,977 acres. Imports (1909-10), 177,594; exports, £199,284; revenue, £52,326; expenditure, £53,495. Rail-

ways (private), 16½ miles; telephone lines, 300 miles; post offices, 12. The governor of the Leeward Islands colony (1911, Sir Ernest Bickham Sweet-Escott) resides at St. John.

ANTINOPOLIS, EXCAVATIONS AT. See **ARCHAEOLOGY**.

ANTI-SALOON LEAGUE. See **LIQUOR LEGISLATION**.

ANTITOXIN. Cumberlage advocated the administration of diphtheria antitoxin by the mouth, and claimed that this method had several points of superiority over injection. He says that results are obtained within a few hours after administration, a smaller dose is required—not more than 4000 units being given at a time, the usual dose being 2000 units, followed up, if necessary, by a further dose. By giving it in this way, it is possible to administer the antitoxin continuously by making a mixture and ordering it to be given every two or four hours as indicated. No patient treated by him in this way has shown signs of serum sickness (see **ANAPHYLAXIS**), and no rash or joint pains have ever been observed.

ANTIVIVISECTION. See **VIVISECTION**.

ANTS. See **ENTOMOLOGY**.

APPALACHIAN EXPOSITION. See **EXPOSITIONS**.

APPALACHIAN FOREST RESERVE.

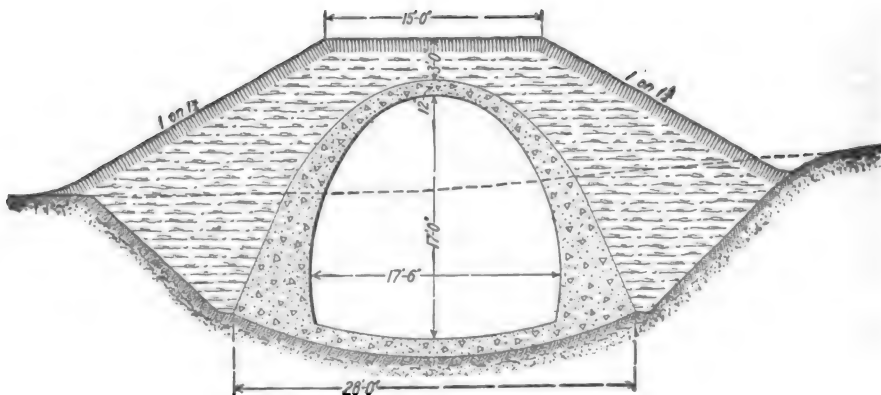
See **AGRICULTURAL LEGISLATION**.

APPLES. See **HORTICULTURE**.

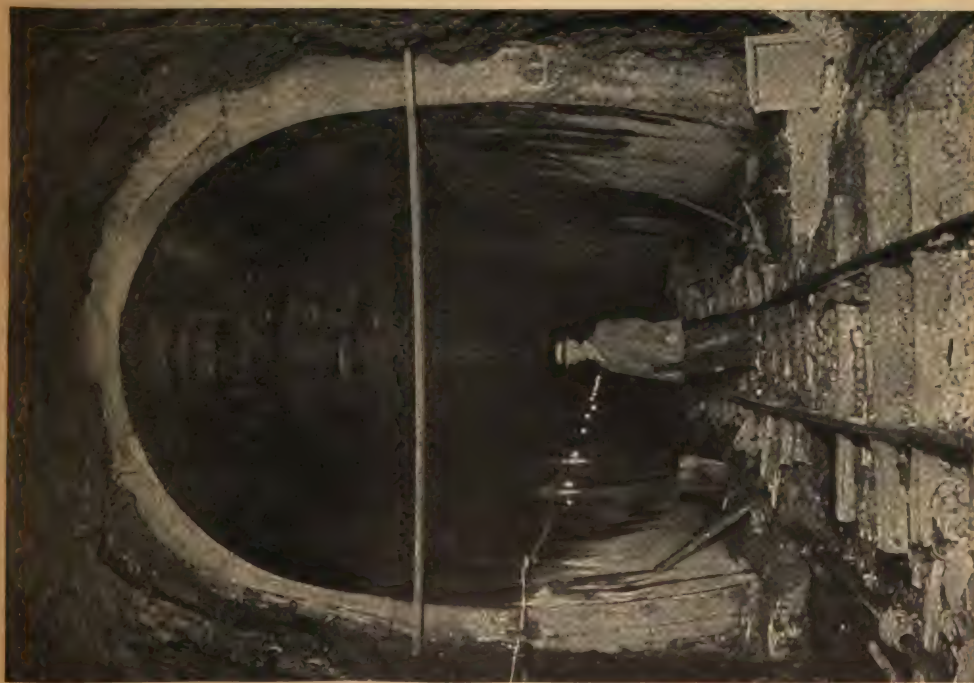
APRICOTS. See **HORTICULTURE**.

AQUEDUCTS. During the year 1911 severe droughts in America and Europe directed more than usual attention to the important water-supply projects in course of construction. In the United States these included the great Catskill and Los Angeles aqueducts. In Great Britain there was a number of extensions to the existing supply systems. In France the scheme of building an aqueduct from Lake Geneva to Paris was revived and discussed as a possibility.

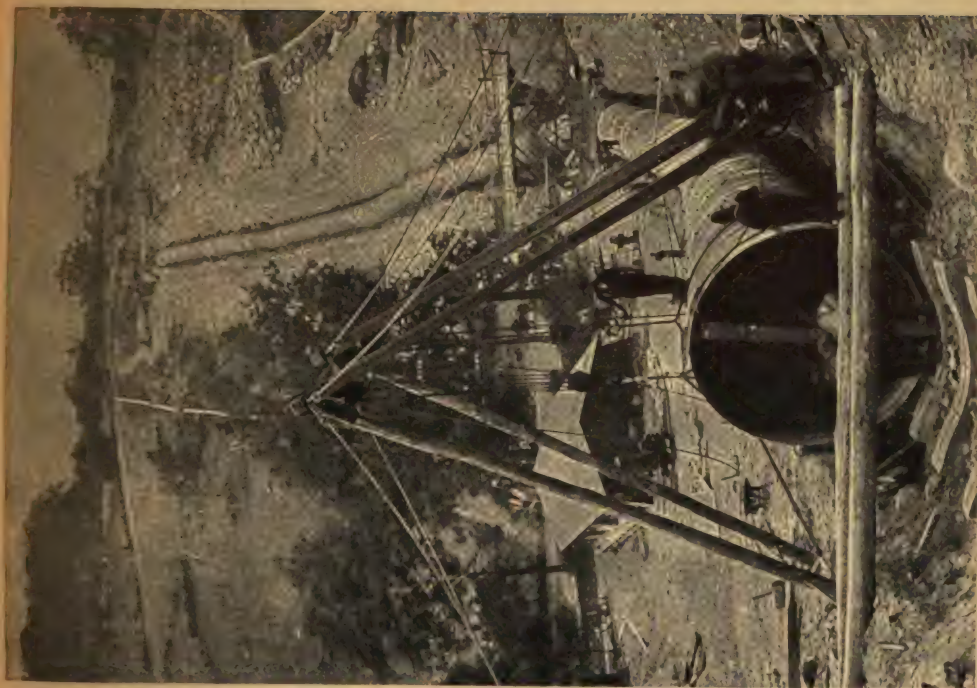
CATSKILL AQUEDUCT. This project, on which substantial progress was made in 1911, had been under way since 1906. It will be recalled that it provides for the eventual taking of water from the Esopus, Rondout, Schoharie, and Catskill creeks, and delivering it to Greater New York, a distance of 127 miles, by an aqueduct passing under rivers and deep valleys, and by a system of pipe lines. The development of the Esopus watershed alone, which was in progress in 1911, was contemplated to make available 250,000,000 gallons daily.



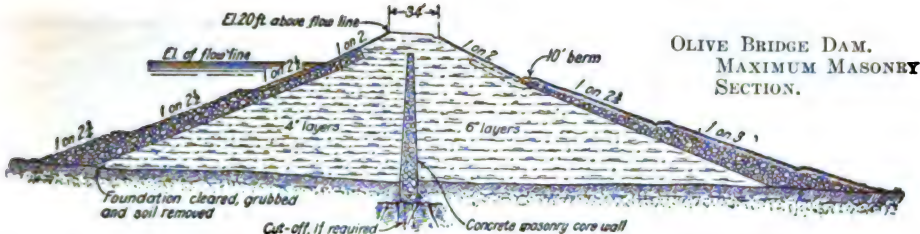
CUT AND COVER SECTION, CATSKILL AQUEDUCT



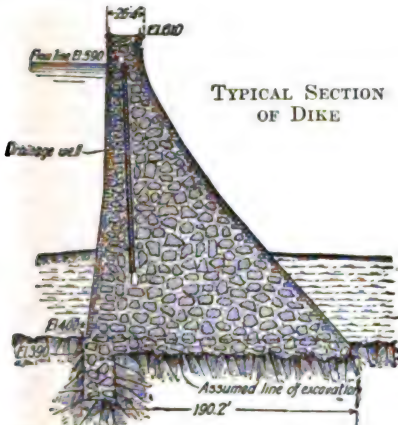
THE CATSKILL AQUEDUCT
 TYPICAL GRADE TUNNEL ON THE LINE OF THE AQUEDUCT. BONTICOU
 GRADE TUNNEL 17 FEET HIGH, 13 FEET, 4 INCHES WIDE. END
 OF COMPLETED CONCRETE ARCH LINING; COMPLETE
 INVERT REMAINS TO BE LAID



HUNTER'S BROOK STEEL-PIPE SIPHON. ERECTING STEEL-PIPE ON CON-
 CRETE CRADLES PREVIOUSLY PLACED. PIPE WILL BE IMBEDDED IN
 CONCRETE AND BACK-FILLED WITH EARTH AND LINED WITH
 3 INCHES OF PORTLAND CEMENT MORTAR



During 1911 construction work was prosecuted actively on thirty-four main contracts for the Ashokan impounding, the Kensico storage, and the Hill View equalizing reservoirs; on the 110 miles of transportation works between the Ashokan reservoir and the terminal shafts in Brooklyn; and on nine miles of pipe line in Brooklyn and Queens boroughs. Seven of these contracts, amounting to \$22,000,000, were awarded during the year, making the aggregate amount of contracts awarded about \$91,000,000, upon which about \$18,000,000 were earned during the year, making a total of about \$42,000,000 earned to date.



At the Ashokan reservoir, the masonry portion of the Olive Bridge dam was entirely completed, and the dikes and other works were so well advanced that the storage of water in the reservoir undoubtedly would be begun in the summer of 1913.

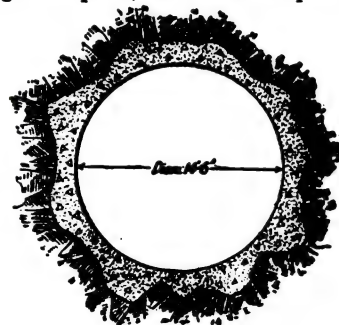
At the Kensico reservoir, the highway bridges were substantially completed, the two new temporary reservoirs to replace the old Lake Kensico were finished and were in use, and work

on the excavations for the foundations of the new dam was in rapid progress. As the aqueduct by-passes the Kensico reservoir, it is not a necessary link for the delivery of water. The Hill View reservoir was rapidly taking shape and was about forty per cent. completed. It too is not a necessary link, as it is also by-passed by the aqueduct.

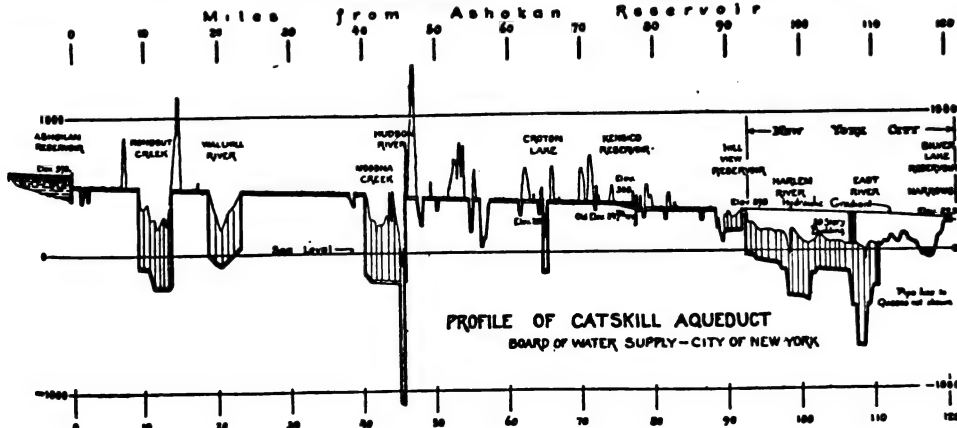
The plans provided that water first could be obtained for the city by discharging water into the present system at Croton Lake storage reservoir, which is crossed by the Catskill aqueduct. The construction on the Ashokan reservoir and the 65 miles of aqueduct to the Croton Lake was 78 per cent. completed as affecting the delivery of water, and, by temporarily pumping into the aqueduct at the

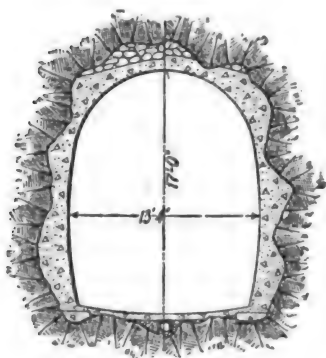
On the ninety-two miles of aqueduct of the Ashokan reservoir, the delivery of water could be effected early in 1913 to tide over any shortage which may exist in the present supply at that time. The successful completion of the tunnel under the Hudson River above West Point, at 1100 feet below sea-level, removed the last physical difficulty of moment on this stretch of aqueduct.

This was the most important from an engineering standpoint, of the seven pressure tun-



PRESSURE TUNNEL





GRADE TUNNEL

nels, all of which were under construction in 1911. It was built by sinking vertical shafts to a depth of 1100 feet in the solid rock on either bank and then connecting them by a tunnel 3030 feet in length. The work of driving the tunnel was commenced in January, 1911, and was all but completed on December 31 of that year, hardly a month's work being required for the meeting of the shafts. The tunnels under Rondout, Wallkill and Moodna creeks, and under Croton Lake, with an aggregate length of 75,000 feet, also were prosecuted vigorously during the year, and were nearing completion at its end.

On the 92 miles of aqueduct from the Ashokan reservoir to the city line, 73 per cent. of the construction necessary to transport water was completed, December 31, 1911. About 55 miles of full waterway section of 500 million gallons per day capacity was finished, of which about 35½ miles were cast in concrete during 1911. The accompanying table shows the progress for the different types of aqueduct.

Class	Length to be done Miles	Length completed Miles	Length partly done Miles
Cut-and-cover ...	54.8	38.2	47.7
Grade tunnel...	13.5	5.1	13.3
Pressure tunnel.	17.5	10.0	17.5
Steel pipe siphon	6.2	1.7	5.7
Totals	92.0	55.0	84.2

Contracts for the 18 miles of deep pressure tunnel from the city line at Yonkers to Brooklyn, through which the Catskill water will be delivered to the several boroughs, were let in June, 1911, and at the end of the year seven of the twenty-four shafts had reached tunnel grade and excavation from them was beginning. The aggregate depth of the twenty-four shafts was 7883 feet, of which 4157 feet had been excavated and 2595 feet lined with concrete. These tunnels should be completed by the end of 1915.

THE CITY AQUEDUCT AND PRESSURE TUNNEL. The plans, as officially summarized, provided that from the Hill View reservoir, Catskill water would be delivered to the five boroughs by a circular tunnel in solid rock reducing in diameter from 15 feet to 14, 13, 12, and 11 feet. From two terminal shafts in Brooklyn steel and iron pipe-lines will extend into Queens and Richmond. A cast-iron pipe, resting on

the harbor bottom, will cross the Narrows to the Silver Lake reservoir on Staten Island, holding 400,000,000 gallons. The total length of this delivery system is over 34 miles. The tunnel had been located at depths of 200 to 750 feet below the street surface, thus avoiding interference with streets, buildings, subways, sewers, and pipes. These depths are necessary, also, to secure a substantial rock covering to withstand the bursting pressure. The tunnel was being constructed from twenty-four shafts about 4000 feet apart, located in parks and other places where they would interfere very little with traffic. Through these shafts, also, the water will be delivered into existing pipes. Tunnel and shafts will be lined with concrete. The estimated cost was \$25,000,000, for tunnel, pipe-lines, and Silver Lake reservoir. The only parts of the City Tunnel work visible to the pedestrian were at the shafts. The tunnel passes from one to another, for its whole length under streets, parks, or rivers and at varying depths. In Brooklyn, beyond Shaft twenty-three, work will include pipe in trench to the shore in Bay Ridge; then pipe on the bottom of the Narrows to Tompkinsville, Staten Island; thence pipe in trench to the Silver Lake reservoir; through eastern Brooklyn and into Queens, pipe-line in trench from Shaft twenty-four, mainly along Willoughby Avenue, Troutman Street, and Flushing and Fisk avenues to Queens Boulevard.

The Catskill water will flow by gravity all the way and will rise under its own head to about 295 feet above sea-level in the Bronx, 280 feet in Manhattan, 260 feet in Brooklyn and Queens, and 230 feet in Richmond.

LOS ANGELES AQUEDUCT. This great work was reported nearing completion at the end of 1911, and the extraordinary rate of progress shown since the beginning of actual construction, October, 1908, was maintained through the year. The total length is 213.69 miles, and the construction includes tunnels, covered conduits, uncovered conduits, canals, siphons, and flumes, the estimated cost of which, including the water rights and rights of way was \$24,500,000. The time set for the completion of the work was in 1912, and with 81 per cent. of the time elapsed December 31, 1911, it was considered that the original estimate would be met. The work included 42.9 miles of tunnel, of which at the end of the year 42.5 miles had been excavated and 33 miles had been lined. There were 97.69 miles of covered conduit, of which 81.5 miles had been excavated, and 80 miles lined. Of the 37.2 miles of uncovered conduit 20.5 miles had been excavated, and 20 miles lined, while of 23.3 miles of canal 22 miles had been excavated. Siphons along the route include 12.43 miles, and of these 3.5 miles had been completed; and of 17 miles of flume .08 of a mile had been finished. The capacity of the new aqueduct was estimated at 430 second feet, which it was believed would afford sufficient water supply for the city with one million population, and supply irrigation for over 60,000 acres of land. An interesting feature of the project was the construction of the hydro-electric power plants, which were to develop 120 horsepower. The Los Angeles aqueduct was being built by the city of Los Angeles, and was one of the largest municipal works ever undertaken directly by an American city.

MANCHESTER AQUEDUCT. At the end of the year the two northern sections of this great English aqueduct from Thirlmere to Manchester, were very nearly completed, and of the third section 14 miles of pipe out of 22 miles had been laid. The work involves the laying of a third pipe-line, and is noteworthy in that fourteen railways must be crossed in the third section alone. Under the Manchester ship canal a tunnel was being driven 60 feet below the water level over two vertical shafts 600 feet apart. At the close of the year it was expected that the new pipe-line would be completed up to the outlying districts of the city by the following summer.

In connection with the additional water-supply works for the city of Glasgow, a tunnel over the Loch Arklet reservoir to Loch Katrine, a distance of about half a mile, was more than half finished at the close of the year. This project involves the construction of a large dam and important works for impounding the water. See **WATER SUPPLY**.

ARABI PASHA, properly **AHMED EL-ARABI**. An Egyptian revolutionist, died September 18, 1911. He was born of Fellah parents in Lower Egypt about 1841. His early life was spent as a laborer and he was soon conscripted for the army. He served for twelve years as a private soldier in the Egyptian army and gradually rose to the rank of colonel. As a result of injustice which he considered himself to have suffered, he became hostile to the rulers of his country and having been dismissed from the army, became attached to a secret society of Egyptian officers. His object was to displace the Turkish officers. Largely through his influence a movement for "Egypt for the Egyptians" came to great strength and in 1884 he took part in an insurrection which was successful. Arabi, as leader, demanded from the Khedive the dismissal of the ministry, the convocation of a parliament, and the increase of the army to 18,000 men. Most of his demands were acceded to and he entered the new cabinet as minister of war in 1882. In this position he became a virtual autocrat, setting aside the Anglo-French financial control. In June, 1882, a street row in Alexandria developed into a massacre of Christians. Although Arabi was acquitted of complicity in this, it had the effect of placing the supreme power in his hands, with the Khedive little more than a prisoner. Great Britain now interfered and the British fleet at Alexandria bombarded that city. The Egyptian troops, under the lead of Arabi, retreated, and the latter issued a proclamation of "irreconcilable war." In August, 1882, he was formally dismissed from the post of minister of war by the Khedive, and Sir Garnet Wolseley headed an army against him. Wolseley seized the Suez Canal and carried the earthworks at Tel-el-Kebir September 13, and two days later reached Cairo, where Arabi had taken a stand. The latter seems to have fled at the first attack of the British troops. He was pursued and finally reached Alexandria, where he surrendered to the British. He was tried for the crime of rebellion, was found guilty and sentenced to death, but this was commuted to imprisonment for life. He was sent to Ceylon with a pension of £30 a month, and in 1901 was allowed to return to Egypt, where he lived in obscurity until his death. Although he was personally insignificant, he was directly responsible for British in-

tervention in Egypt and for the British protectorate which followed.

ARABIA. See **TURKEY** and **EXPLORATION**.

ARBITRATION. The chief event in 1911 in the realm of international arbitration was the signing on August 3 of treaties of general arbitration between the United States and Great Britain and between the United States and France. These treaties, which were signed by the American Secretary of State, the Hon. Philander C. Knox, and by the British and French ambassadors respectively, provide that diplomacy failing to secure an adjustment of difficulties "relating to international matters in which the High Contracting Parties are concerned by virtue of a claim of right made by one against the other under treaty or otherwise, and which are justiciable in their nature by reason of being susceptible of decision by the application of principles of law or equity [they] shall be submitted to the Permanent Court of Arbitration established at The Hague by the convention of October 18, 1907, or to some other arbitral tribunal, as shall (may) be decided in each case by special agreement, which special agreement shall provide for the organization of such tribunal if necessary, to define the scope of the powers of the arbitrators, the question or questions at issue, and settle the terms of reference and the procedure thereunder." (Article I.)

This section refers to "all differences hereafter arising" and the treaties were drawn so as to exclude certain exceptions contained in the earlier treaties of arbitration between the parties, and "to provide means for the peaceful solution of all questions of difference which it shall be found impossible in future to settle by diplomacy."

As the United States Senate was in session at the time the treaties were signed, they were at once transmitted to it by the President and immediately referred to the committee on Foreign Affairs, which reported them back to the Senate with a recommendation that they be ratified, provided that paragraph 3 of Article III. be first stricken out.

Paragraph 3 of Article III., around which the fight has raged, reads:

"It is further agreed, however, that in cases in which the parties disagree as to whether or not a difference is subject to arbitration under Article I. of this treaty, that questions shall be submitted to the Joint High Commission of Inquiry; and if all or all but one of the members of the commission agree and report that such difference is within the scope of Article I., it shall be referred to arbitration in accordance with the provisions of this treaty."

A joint high commission is to be instituted in each case of difficulty arising by each of the parties to it designating "three of its nationals to act as members for the purposes of such reference; or the commission may be otherwise constituted in any particular case by the terms of reference, the membership of the commission and the terms of reference to be determined in each case by an exchange of notes. The commission shall have power to administer oaths to witnesses and to take evidence whenever deemed necessary, and the parties agree to adopt such legislation as may be appropriate and necessary to give the commission the powers above mentioned, and to provide for the issue of subpoenas and for compelling the attendance of

witnesses in the proceedings before the commission.

"On the inquiry both sides must be heard, and each party is entitled to appoint an agent, whose duty it shall be to represent his government before the commission and to present to the commission, either personally or through counsel retained for that purpose, such evidence and arguments as he may deem necessary and appropriate for the information of the commission. It shall meet whenever called upon to make an examination and report under the terms of the treaty, and the commission may fix such times and places for its meetings as may be necessary, subject at all times to special call or direction of the two governments."

Two reports on the treaties were made from the committee on Foreign Affairs—a majority report prepared by Senator Lodge; and a minority report prepared by Senator Root, presenting his views and those of Senators Cullom and Burton.

In support of its contention that Article III. should be amended, Senator Lodge's report declared that there can be "no question that through the machinery of the joint commission as provided in Articles II. and III. and with the last clause of Article III. included, the Senate is deprived of its constitutional power to pass upon all questions involved in any treaty submitted to it in accordance with the Constitution. The committee believes that it would be a violation of the Constitution of the United States to confer upon an outside commission powers which, under the Constitution, devolve upon the Senate. It seems to the committee that the Senate has no more right to delegate its share of the treaty-making power than Congress has to delegate the legislative power. The Constitution provides that before a treaty can be ratified and become the supreme law of the land it shall receive the consent of two-thirds of the Senators present. This necessarily means that each and every part of the treaty must receive the consent of two-thirds of the Senate. It cannot possibly mean that only a part of the provisions shall receive the consent of the Senate. To take away from the Senate the determination of the most important question in a proposed treaty of arbitration is necessarily in violation of the treaty provisions of the Constitution. The most vital question in every proposed arbitration is whether the difference is arbitrable. For instance, if another nation should do something to which we object under the Monroe doctrine and the validity of our objection should be challenged and an arbitration should be demanded by that other nation, the vital point would be whether our right to insist upon the Monroe doctrine was subject to arbitration, and if the third clause of Article III. remains in the treaty the Senate could be debarred from passing upon that question.

"One of the first of sovereign rights is the power to determine who shall come into the country and under what conditions. No nation, which is not either tributary or subject, would permit any other nation to compel it to receive the citizens or subjects of that other nation. If our right to exclude certain classes of immigrants were challenged, the question could be forced before a joint commission, and if that commission decided that the question was arbitrable the Senate would have no power to

reject the special agreement for the arbitration of that subject on the ground that it was not a question for arbitration within the contemplation of Article I. In the same way our territorial integrity, the rights of each State, and of the United States to their territory might be forced before a joint commission, and under Article III., in certain contingencies, we shall have no power to prevent our title to the land we inhabit from being tried before a court of arbitration. To-day no nation on earth would think of raising these questions with the United States, and the same is true of other questions, which will readily occur to everybody. But if we accept this treaty with the third clause of Article III. included we invite other nations to raise these very questions and to endeavor to force them before an arbitral tribunal. Such an invitation would be a breeder of war and not of peace, and would rouse a series of disputes, now happily and entirely at rest, into malign and dangerous activity. To issue such an invitation is not, in the opinion of the committee, the way to promote that universal peace which we all most earnestly desire.

"To take from the Senate, in any degree or by any means, the power of saying whether a given question is one for arbitration or not is to destroy the power of the Senate on the most important point to be decided in connection with differences arising with any other nation. Even if it were constitutional, to deprive the Senate to this extent of their share in the treaty-making power would be most unwise and perilous. The Senate of the United States is as earnestly and heartily in favor of peace and of the promotion of universal peace by arbitration as any body of men, official or unofficial, anywhere in the world, or as anyone concerned in the negotiation of arbitration treaties. The history of the United States for a period of more than seventy years exhibits a record of arbitration treaties unequaled by that of any other nation on earth. Every one of those treaties has received the cordial assent of the Senate of the United States. The Senate to-day is heartily in favor, in the opinion of the committee, of enlarging to the utmost practicable limit the scope of general arbitration treaties.

"The committee recommended to the Senate the approval of the enlarged scope for arbitration proposed in Article I., but it declined to admit that the destruction of the constitutional powers of the Senate is necessary to the promotion of peace and arbitration, or that their maintenance diminished by a hair's breadth the enlarged scope which these treaties propose for arbitration as the true method for the settlement of international controversies."

Senator Root's minority report denied that the treaties involved any abandonment of the constitutional powers of the Senate, holding that the contrary view "cannot be maintained except on the theory that all general treaties of arbitration involve such an abandonment, and no one thinks that it is so. The difference between a special treaty of arbitration and a general treaty of arbitration is that, in a special treaty, the President and Senate agree that a particular case shall be submitted to arbitration; while in a general treaty the President and Senate agree that all cases falling within certain described classes shall be sub-

mitted. That is what is done by the now existing general treaties of arbitration with England and with France; and that is what is done by the first article of the pending treaties, with a materially enlarged description of the class of cases to be submitted.

"The pending treaties also provide that, if the parties disagree as to whether any particular case comes within the description of the class which they have agreed to arbitrate, the question whether that case is one of the cases described shall be submitted to the arbitral decision of a joint commission.

"Provisions of this kind are very common in our statutes. For example, when Congress provides that a duty shall be imposed upon imports of one kind and not upon imports of another kind some officer has to decide whether goods which are imported come within the dutiable class or not. No one claims that the power to make such a decision involves a delegation to collectors of customs of legislative power to say what goods shall be dutiable.

"It is true that there are some questions of national policy and conduct which no nation can submit to the decision of anyone else, just as there are some questions of personal conduct which every man must decide for himself. The undoubted purpose of the first article of these treaties is to exclude such questions from arbitration as non-justiciable."

Senator Burton's views were set forth in a supplemental minority report in which he discussed at length the views set forth in the majority report, concluding with these paragraphs:

"The Senate, in the treaties of 1908, did not reserve the right generally to say whether or not a given question was arbitrable; it only reserved the right to say whether any specific question fell within the exceptions, and unless it should be extravagantly claimed that all differences would fall within the exceptions—in which case the existing treaties are a farce—the Senate has bound itself in advance under existing treaties to arbitrate without reservation a very large number of questions, and under these treaties it can not in good faith refuse to ratify a special agreement submitting to arbitration a difference which does not fall within exceptions expressly reserved.

"It appears therefore that the Senate in approving the existing arbitration treaties and the majority of the committee in approving the enlarged scope of arbitration proposed in Article I., and assenting to the arbitration of all questions within the rule therein prescribed, have shown a willingness to limit in advance the power of the Senate to object to the arbitration of a large number of questions, and it must necessarily be concluded that neither the Senate nor the majority of the committee consider that such limitations are a violation of the Constitution of the United States or that it is unwise or perilous."

Senator Root presented resolutions of ratification, to which Senator Bacon of Georgia proposed the following amendments:

Amend the second resolution by inserting after the word "question" in the fourth line the following words: "Which affects the admission of aliens into the United States, or the admission of aliens to the educational institutions of the several States, or the territorial integrity of the several States or of the United States

concerning the question of the alleged indebtedness or moneyed obligations of any State of the United States, or any question which depends upon or involves the maintenance of the traditional attitude of the United States concerning American questions commonly described as the Monroe doctrine."

So that the said second resolution when thus amended will read as follows:

"RESOLVED FURTHER, That the Senate advises and consents to the ratification of the said treaty with the understanding, to be made a part of such ratification, that the treaty does not authorize the submission to arbitration of any question which affects the admission of aliens into the United States, or the admission of aliens to the educational institutions of the several States, or the territorial integrity of the several States or of the United States, or concerning the question of the alleged indebtedness or moneyed obligation of any State of the United States, or any question which depends upon or involves the maintenance of the traditional attitude of the United States concerning American questions, commonly described as the Monroe doctrine, or other purely governmental policy."

Amend further the said resolutions by adding the following as an additional resolution:

"RESOLVED FURTHER, That the Senate advises and consents to the ratification of the treaty with the understanding, to be made a part of such ratification, that the treaty does not purport or intend that there shall in any case be denied to the Senate of the United States the full exercise of all the powers and duties conferred upon it by the Constitution of the United States in advising and consenting to the making of treaties and as to each and every part of the same and as to each and every question entering therein; and that nothing in said treaty shall be construed to impose any obligation, legal or moral, upon the Senate to waive its constitutional authority and duty to consider and determine each and every question entering into treaties proposed or submitted in pursuance thereof, including the question whether the matters in difference are arbitrable."

The treaties did not come before the Senate for final ratification during its special session, and an active campaign in their behalf was at once inaugurated by the President, who spoke with great force and earnestness in all parts of the country. In his address before the American Bar Association, August 3, he thus put the case for the treaties:

"We have negotiated two treaties, one with France and one with England, and we have constituted two tribunals. First a tribunal of arbitration pure and simple, to decide justiciable questions, and they are defined to be questions requiring for their solution principles of law and equity including both domestic and international law. To the second tribunal, a joint high commission, consisting of three representatives of the two parties, is committed not only the negotiation and recommendation in an advisory capacity as to controversies arising, but also a power of final decision by a vote of five to one as to whether questions in respect to which the parties differ as to their justiciable character are justiciable and come under the first section of the treaty. The majority of the committee on Foreign Relations in the

Senate has said that to enter into an agreement of this sort by the Senate is for the Senate to delegate some powers that were conferred upon it by the Constitution. Well, there were not any more powers conferred by the Constitution upon the Senate with reference to making treaties than there were upon the Executive. I think that is pretty plain, because the Executive has to initiate, and, of course, has to agree to the treaties before they can go into force.

"Now, my proposition is this: That if the Senate has power to make an agreement which shall bind it and the government—or rather, which shall bind the government and therefore bind it—to consent to the adjudication of any class of questions arising in the future by a board of arbitration, then it necessarily follows that it has the right to consent to this treaty. For the reason that the question arising before this commission is—what? It is the question of the construction of the first section of the treaty, and the class of questions most likely to arise in arbitration cases is that of the construction of treaties. Therefore, all the Senate agrees to do is to abide by the judgment of this joint high commission as to what the construction of that clause shall be in future when the cases arise. In other words, it is only agreeing to do what it has already agreed to do in a dozen of cases, namely, to abide by the arbitration of a tribunal as to certain classes of questions that arise in the future. They have done that. Therefore, they have admitted the power to bind themselves to abide by whose judgment as to certain classes of questions in the future, and this is only one of a class, to wit, one of a class of construction of the treaty.

"I am most anxious that that feature of the treaty should be allowed to remain in, and I am anxious because I want to make this treaty mean something, I want to have it have a binding effect—to accomplish something. You know they say the Indians when they are sick don't like any medicine except something that bites—something that is bad to take. Now, I do not think we are going to get ahead with this arbitration business unless we are willing to assume an obligation to execute a judgment that may bite and may be bad for us to take; and, if we are going to take the position that we will wait until the question arises and then conclude, because we do not think we can win in the arbitration case, that it is not a justiciable question, then we have written our promise in water and we have made agreements that will dissolve under the test of experience. And when that shall arise and the result follows which may be anticipated, then instead of promoting the cause of arbitration we shall have interfered with it, obstructed it and made it a laughing stock for nations."

In another address (before the Methodists at Ocean Grove) the President declared:

"We cannot make omelettes without breaking eggs; we cannot submit international questions to arbitration without the prospect of losing; and if arbitration is to be effective, and is to cover the ground that shall really promote the cause of peace and prevent war, it must cover the questions of the utmost interest to both countries. If the subject of arbitration is merely for discussion in peace societies and is only for the purpose of furnishing a text

for an address like that I am delivering to you, and if the result is not to mean real victory for one party and real defeat for the other, certainly the time of diplomatic officers, who have many other things to do, ought not to be wasted on it. I am very serious in my advocacy of arbitration as a means of settling international disputes, and I believe that you are. I am willing to abide by an adverse decision in a court of arbitration for my own country, even though it may impose a serious loss upon her, if the system of arbitration is to be made permanent and the court is of such a character that when I have a just cause I can count on receiving a just judgment. If we are going into the arbitration game, if I may call it such, we must play it through to the end, and we must take our hard knocks with equanimity, as we expect others to take theirs, with the hope and knowledge that the disadvantages that may accrue to each party can never equal the horrible losses of war."

One hundred and eighty boards of trade and chambers of commerce in cities with an aggregate population of 21,000,000 have endorsed the treaties and recommended their ratification. Every important city and State is represented in this list. The business bodies of Great Britain and France were also favoring the treaties. Large numbers of religious and civic bodies here and abroad declared in favor of ratification. The opposition came from those who sincerely believed that the Senate's prerogatives were threatened and from certain elements in the various communities who were antagonistic to the foreign countries, parties to the treaties. There was also a considerable number of people who felt that the treaties were inadequate to accomplish the ends in view. At the close of the year the Senate had not acted, and the newspaper dispatches reported that here was the possibility of a compromise between the conflicting views represented respectively by the President and the majority of the Foreign Affairs Committee. Former President Roosevelt was one of those who opposed the ratification of the treaties on the ground that questions affecting the vital interests and the honor of the country should be specifically withheld, as they were in the treaties which he himself negotiated while President, but which he withdrew from the Senate because that body refused to delegate to the Executive the power over future arbitrations under those treaties.

ARBITRATION WITH JAPAN AND GREAT BRITAIN. An unlimited arbitration treaty between the United States and Japan was understood to be well advanced. Friends of international peace in the latter country had already begun a campaign on the subject in the Japanese press. A concerted effort was being made to the same effect in this country. The Japanese Mission of the American Board (Congregational) thus expressed the opinion of those who favor such a treaty:

"We rejoice in the growing peace movement in Japan, and in the increasing evidences of a calm judicial spirit among its leaders, a spirit which refuses to exaggerate the slight offenses, to countenance a narrow nationalism, or to regard exceptional unfriendly utterances of individuals as indicating the spirit of the American people. We rejoice in the suggestion of an unlimited arbitration treaty between the United States and Japan, and hope that noth-

ing may be allowed to stand in the way of the framing and ratification of such a compact."

Dr. Inazo Nitobe, president of the First Higher College of Tokyo, has been spending the winter in this country to promote a better understanding between his country and America. David Starr Jordan, president of the Leland Stanford University, made a visit to Japan last summer for a similar purpose.

A treaty between the United States and Great Britain providing for the arbitration of pecuniary claims between the two countries, in accordance with the general arbitration treaty, was ratified July 19 by the Senate in executive session. The treaty provided that within four months either of the governments might submit to the other any claims which it desires to have passed upon. All claims not submitted within the time specified are to be barred. The tribunal provided for is to consist of one member chosen by each of the governments, and a third to be chosen by these two. The sessions of the tribunal will be held in Washington. A long list of shipping claims against the British government was submitted with the treaty. The list of claims against this government was much shorter, consisting of Canadian demands for the refund of hay duties. Many of the claims of the United States are of long standing, some of them having grown out of the Newfoundland fisheries dispute.

CASES REFERRED TO THE HAGUE. The following is a list of the recent American cases referred either to The Hague Tribunal or to special commissioners for settlement:

1. The North Atlantic Coast Fisheries case, between the United States and Great Britain, submitted to The Hague Tribunal by the special agreement of January 27, 1909, between these countries.

2. The Orinoco Steamship case, submitted to The Hague Tribunal under the protocol between the United States and Venezuela of February 13, 1909. This protocol also provided for the submission to The Hague of two other cases, namely, the case of the United States and Venezuela Company (Critchfield claims), and the case of the Orinoco Corporation. These were settled by the payment, on the part of Venezuela, of \$475,000 and \$385,000 respectively.

3. The Alsop claim, submitted to His Britannic Majesty as "Aimable Compositeur," under the protocol of December 1, 1909, between the United States and Chile.

4. The Chamizal case, resubmitted by the United States and Mexico to the International Boundary Commission under the convention of June 24, 1910.

5. The Emery case, in which the protocol between the United States and Nicaragua provided for the submission of the Emery Company's claim to a commission of three, one to be appointed by each country and these two to select a third. This claim was compromised for \$600,000.

6. The treaty between the United States and Great Britain relating to the boundary waters between the United States and Canada, signed May 13, 1910, provides for an international boundary commission of the United States and Canada and defines the jurisdiction of this commission. This commission has jurisdiction as of course in matters involving the use or obstruction or diversion of boundary waters; at the request of either party as regards any other

boundary matter; and by consent of both parties in regard to any matter between the United States and Canada. Several cases were about to be presented to this commission on behalf of one or the other party.

7. There has recently been negotiated a convention providing for a claims commission between the United States and Great Britain and the first schedule of claims to be submitted has been agreed upon between the two countries.

In March The Hague Tribunal handed down its decision in the Savarkar case. This was an interesting case between England and France, involving an important question of the rights of fugitives from justice in transit under the control of extradition officers. The decision was favorable to England's contention. See *INDIA, History*.

Two new cases have been submitted to The Hague Court, the tenth and eleventh respectively. The first is that of certain troubles arising between Russia and Turkey with regard to indemnity agreed upon at the close of the war between them thirty-three years ago; the second involves pecuniary claims between Italy and Peru. Dr. G. Leguia y Martínez, foreign minister, and Fernández Alonso, the Bolivian minister to Peru, signed a protocol fixing the basis of action for the mixed commission which is to determine a definite demarcation of the frontiers in accordance with the recent treaty between Peru and Bolivia. The arrangement provides that any difference over questions of fact shall be submitted to the Royal Geographical Society of London.

A dispatch from Peking in March declared that the Chinese government had agreed to the appointment of Russian and Chinese commissioners with full powers to determine finally the frontier from Abagajtujewsk, in the province of Transbaikalia, to the Argun River, which, throughout its course, 440 miles, forms the boundary line between Russian territory and western Manchuria.

CARNEGIE PEACE ENDOWMENT. The Carnegie Peace Endowment of \$10,000,000 has been established. The scope of its purposes was outlined at the Mohonk conference by Dr. Nicholas Murray Butler: The trustees have determined to organize the undertaking as a great institution for research and public education and to carry on its work in three parts or divisions—a division of international law, a division of economics and history, and a division of intercourse and education. Otherwise stated, these three divisions will represent the juristic, the economic, and, broadly speaking, the educational aspects of the problem before the trustees, which is to hasten the abolition of international war by the erection of an international judicial system competent to hear and determine all questions of difference arising between nations.

The division of International Law will be under the direction of Professor James Brown Scott, whose services at the Department of State, at the second Hague conferences, and in connection with the American Society and Journal of International Law, are too well known to need specific enumeration. This division is to promote the development of international law, and by study, by conferences, by aiding negotiations, and by publication, to assist in bringing about such a progressive development of the rules of international law as

will enable them to meet with constantly growing adequacy the needs of the nations of the world in their juristic relations toward each other.

The division of Economics and History will be under the direction of Professor John Bates Clark, of Columbia University. The work of this division, like that of the division of International Law, will be scientific and scholarly in character, in organization and in method. Like the division of International Law, it will aim at the education of public opinion and at the formulation of conclusions that may serve for the guidance of governmental policy. With Professor Clark will be associated a score of the world's leading economists. England, Germany, France, Italy, Austria-Hungary, Switzerland, Holland, Denmark, Japan, the Argentine Republic, and other nations will have a voice and a part in formulating the problems to whose solution this division will address itself, and in working out the solution of those problems. The results arrived at in this case, as in the case of the division of International law, will not be those imposed upon the judgment of one people by the scholars and economists of another, but they will be those that are reached by co-operation between economists of a dozen nations. It will be the business of this division of the work of the endowment to study the economic causes and effects of war; the effect upon the public opinion of nations and upon international good will of retaliatory, discriminatory, and preferential tariffs; the economic aspects of the present huge expenditures for military purposes; and the relation between military expenditures and international well-being and the world-wide programme for social improvement and reform which is held in waiting through lack of means for its execution.

The division of Intercourse and Education (the director for which has not yet been announced) will supplement the work of the two divisions which may be called, perhaps, the scientific ones, by carrying forward vigorously and in co-operation with existing agencies the educational work of propaganda, of international hospitality, and of promoting international friendship. Among the tasks of this division will be to diffuse information and to educate opinion regarding the causes, nature, and effects of war and the means for its prevention and avoidance; to establish a better understanding of international rights and duties and a more perfect sense of international justice among the inhabitants of civilized nations; to cultivate friendly feelings between the inhabitants of different countries, and to increase the knowledge and understanding of each other of the several nations; to promote a general acceptance of peaceable methods in the settlement of international disputes, and to maintain, promote, and assist such establishments, organizations, associations, and agencies as shall be deemed necessary or useful in the accomplishment of the purposes for which the endowment exists. In other words, this division will make practical application of the teachings and findings of the divisions of International Law and of Economics and History.

WORLD PEACE FOUNDATION. At its annual meeting in November it was reported that during the year four important new books had been added to the International Library, published by the foundation, and already numbering

twenty volumes. The new volumes are Reinsch's *Public International Unions*, Bridgman's *First Book of World Law*, the *Proceedings of the Universal Races Congress* at London, and Senator Root's argument in the Newfoundland fisheries arbitration. The foundation has circulated during the year 300,000 pamphlets and leaflets of various kinds. Its directors and speakers have given large numbers of addresses in different parts of the country, and Dr. Jordan spent several weeks in Japan and Mr. Mead several weeks in England and Germany promoting closer coöperation between the peace leaders in those countries and the workers here.

Through coöperation with the American School Peace League and the Association of Cosmopolitan Clubs, the foundation is working to promote better international sentiment in schools and colleges, and it is now inaugurating important efforts among the students of European universities. The foundation coöperates closely with the Carnegie Foundation and the American Peace Society.

AMERICAN PEACE SOCIETY. This organization has been reorganized during the year. The chief features of the reorganization and federation plan are as follows: Twelve members of the board of directors to be chosen at large by the society at its annual meeting. In addition to these, each branch society having 500 members or fraction thereof over 100 to choose one member of the board, and an additional member for each additional 500 members or fraction thereof over 100. Each branch society to have the right to send one official delegate to the annual meeting of the society, and as many additional delegates as it has times 100 members. The board of directors, as thus reconstituted, to serve also as a national peace council. The society, as thus reorganized and receiving into its federation the various local peace societies of the country, to receive a subvention from the Carnegie Endowment, said subvention to be used in its direct work and through the branch societies. This plan of reorganization has been unanimously approved by the trustees of the Carnegie Endowment, who have accordingly voted a subvention to the society for the year 1912, on condition that the reorganization is effectively carried out. It has also been unanimously approved by the directors of both the New York and the Pennsylvania Peace societies, which have thus become constituents in the new federation. President, Senator Theodore E. Burton, of Ohio.

AMERICAN ASSOCIATION FOR INTERNATIONAL CONCILIATION. During 1911 this association issued the following leaflets: "School Books and International Prejudices," by Albert Bushnell Hart, January, 1911; Mr. Carnegie's Letter to the Trustees of the Carnegie Endowment for the Advancement of Peace, and Resolutions adopted by the Trustees, January, 1911; "Peace and the Professor," by Grant Showerman, February, 1911; "Woman and the Cause of Peace," by Baron d'Estournelles de Constant, March, 1911; "The Expansion of Military Expenditures," by Alvin S. Johnson, April, 1911; "The First Universal Races Congress," by the Rt. Hon. Lord Weardale, May, 1911; Opening Address at the Lake Mohonk Conference on International Arbitration, by Nicholas Murray Butler, June, 1911; "The United States and Latin America at The Hague," by William I. Hull, July, 1911; "The Emotional Price of Peace," by Professor

Edward L. Thorndike, August, 1911; Letter to the Apostolic Delegate to the United States of America, by His Holiness Pope Pius X, September, 1911; "The Existing Elements of a Constitution of the United States of the World," by H. La Fontaine, October, 1911; "The General Arbitration Treaties of 1911," November, 1911.

Of the latter pamphlet, 250,000 copies were distributed. It contained the full text of the treaties, the majority and minority reports from the committee on Foreign Relations, and sundry comments. The demand for this document indicated a healthful and growing interest in the subject of peace and arbitration.

The AMERICAN SOCIETY FOR THE JUDICIAL SETTLEMENT OF INTERNATIONAL DISPUTES held its annual meeting at Cincinnati, November 7 and 8. James Brown Scott is president. During 1911 it has issued the following leaflets: "The Importance of Judicial Settlement," by Elihu Root, February, 1911; "The Development of the American Doctrine of Jurisdiction of Courts over States," by Alpheus H. Snow, May, 1911; "An International Court of Justice the Next Step," by George Grafton Wilson; "Salient Thoughts," by Theodore Marburg, August, 1911; "The Work of The Hague Court," by N. Politis, November, 1911.

The Seventeenth LAKE MOHONK CONFERENCE held in May, at the invitation of A. K. Smiley, was as usual attended by a distinguished group of diplomats, American and foreign, publicists, officials and representatives of business bodies. President Nicholas Murray Butler, of Columbia, was chairman. There was an unusually large number of representatives from Great Britain and Canada.

The Third NATIONAL PEACE CONFERENCE was held at Baltimore, May 3 to 6. It was opened by the President of the United States. This was the first time a peace conference was ever opened by the head of a great nation. The conference was well attended. The speech of Cardinal Gibbons was highly appreciated as expressive of the awakening interest of the Roman Catholic Church in the new peace movement. Equally noteworthy was James Speyer's address on "International Finance: A Power for Peace." The following resolution, the fifteenth adopted by the conference, marks an advance step in sentiment along this line: "Resolved, That this Congress favors the suggestion that nations should prevent, as far as possible, loans being raised by their subjects or citizens in order to enable foreign nations to carry on war. And be it further

"Resolved, That the government of the United State be requested to include this question in the programme of the Third Hague Conference." Hamilton Holt was president of the conference.

The Third CENTRAL AMERICAN PEACE CONFERENCE met in Guatemala in January.

The Nineteenth INTERNATIONAL PEACE CONFERENCE was to have been held in Rome in November, but on account of the plague it has been postponed, as has, for the same reason, the meeting of the INTERPARLIAMENTARY UNION. This body, according to a statement of its council, received subventions during the past year from eighteen different governments, the total of which amounted to something over \$9000. The largest contributions were made by the United States, Great Britain, France, Germany, and Spain, in this order. The estimated expenses of the union for the coming year amount to

\$13,000. The meeting place of the conference and the union will be announced in 1912.

The First UNIVERSAL RACES CONFERENCE was held in London, July 26 to 29. It was an interesting and unusual gathering. Each race and nation was represented by delegates.

The fifth annual meeting of the AMERICAN SOCIETY OF INTERNATIONAL LAW was held in Washington, April 27 to 29. Senator Elihu Root presided and made a strong address on the present status of international arbitration.

OTHER ARBITRATION AND PEACE SOCIETIES. The following is a list of the State and local arbitration and peace societies:

- The International Peace Association.
- The Association of Cosmopolitan Clubs.
- The Massachusetts Peace Society.
- The Derry (New Hampshire) Peace Society.
- The Connecticut Peace Society.
- The New York Peace Society.
- The New York German-American Society.
- The New Italian Peace Society.
- The Buffalo Peace Society.
- The Pennsylvania Arbitration and Peace Society.
- The Maryland Peace Society.
- The Georgia Peace Society.
- The Arbitration and Peace Society of Cleveland.
- The Kansas Peace Society.
- The Utah Peace Society.
- The Peacemakers of Washington.
- The Oregon Peace Society.
- The Redlands Society.
- The Peace Society of Northern California.
- The Peace Society of Southern California.

ARBITRATION AND CONCILIATION.

INDUSTRIAL LEGISLATION. According to the *Review of Labor Legislation in 1911* laws bearing on trade disputes were passed in nineteen different States. In addition Congress authorized the President to appoint any member of the Interstate Commerce Commission or of the Court of Commerce to exercise power and duties imposed upon the chairman of the Interstate Commerce Commission by the Erdman act. This act, passed in 1898, authorized this chairman to endeavor to bring together the employers and employees of any railroad threatened with a strike, and otherwise to endeavor to bring about a peaceful and immediate settlement of the dispute. Alabama created a State board of mediation and arbitration to bring about a settlement of strikes and lockouts which are threatened or which have occurred. Disputes may be voluntarily submitted in writing to this board; or the members of the board may personally investigate the local conditions giving rise to the dispute. The law also provides that the disputes may be submitted to a local board of three arbitrators. Members of both State and local boards are to receive compensation. Colorado passed a stringent law designed to make illegal a type of labor contract which has been used by mine operators and others since the labor disturbances of 1904. The new law makes it unlawful for an employer to demand as a condition of employment that a person shall not belong to any lawful organization. Colorado, Nevada, New York, and Wisconsin endeavored to prevent the breaking of strikes by employees secured under false representations. The Colorado law forbids any false statements or representations in regard to the kind of work or the conditions under which the work is to be done, and requires that any adver-

tisement or contract for employing labor must state that there is a labor dispute when such exists. Severe penalty for violation is imposed. Connecticut passed a thorough-going law against the black-listing of laborers. Georgia authorized the new commissioner of Commerce and Labor to investigate the causes of strikes and lockouts and to endeavor to bring about a settlement. Michigan repealed its law of 1889 creating a State court of mediation and arbitration. Indiana, Nebraska, Oregon, and Wisconsin required employers to issue letters to discharged employees stating the true cause of discharge; these laws were also designed to prevent black-listing. New Hampshire authorized a labor commissioner to endeavor to settle labor disputes personally; in case he fail he shall endeavor to have the parties concerned refer the matter to a board of arbitration, whose findings shall be binding for six months or until sixty days after either party gives notice of withdrawal. The law also requires that pending the decision of such a board business must be continued on the existing basis. If the commissioner fail to secure a board of arbitration he must request for public use a statement of the causes of the dispute. New Jersey made it a misdemeanor to give or offer anything of value to a labor representative to induce him to prevent or cause a strike; any such representative accepting any such offer was made equally guilty. The Wisconsin Industrial Commission must investigate any contracts, agreements, or rules of employment deemed unfair or unreasonable. Copies of all contracts or agreements must be furnished to the commission, which is required to publish annually not more than 250 pages of information regarding such matters.

BENEFITS TO RAILWAY EMPLOYEES. One of the most striking yet little noticed advantages of conciliatory methods of settling trade disputes was shown by the settlement of the demands of the locomotive engineers of the United States for an advance of 15 per cent. in wages. The railroad managers had agreed to an increase of 9½ per cent., but this was refused. Under the Erdman act United States Commissioner of Labor Niell intervened and secured increases of from 8.5 per cent. to 14.5 per cent. in different schedules. There resulted an increase of about \$4,000,000 to the annual wages of 780 locomotive engineers employed on sixty-one Western railroads, including 53 per cent. of the entire mileage of the United States. This was only one of many railway disputes settled late in 1910 and early in 1911, most of them by arbitration methods. The total annual increase in wages was estimated at nearly \$100,000,000.

CHAMBER OF COMMERCE PLAN. For nearly a century and a half the New York Chamber of Commerce has carried on arbitration in business disputes. Various plans have been tried with more or less success. In 1911 a new scheme was formulated. This provided that the disputants must sign an agreement binding themselves to abide by the award. They also agreed that, after the award, a judgment of the Supreme Court enforcing it may be entered. The plan thus introduces the element of legal compulsion, which is expected greatly to increase its efficiency. The disputants may either select from a list of efficient arbitrators, numbering about 200 members of the chamber, a single person as sole arbitrator; or they may each select

one arbitrator, who need not be a member, and these two shall select a third from a list drawn up by the Chamber of Commerce. The chief advantage of this method of settling disputes is that it avoids the legal delays of appeals to the courts; moreover, many arbitrations may be carried on at once; and the technicalities and intricacies of court procedure are avoided.

CANADA. The success of the Industrial Disputes Investigation act, passed in 1907, whereby investigation by some publicly constituted committee is made compulsory before either a strike or a lockout may be declared, led the National Association of Builders' Exchanges to request that this act be extended to include the building trades. They pointed out that the law had prevented a large proportion of projected strikes during the past four years.

GREAT BRITAIN. The breaking down of the conciliation agreement in the great railway strike (see STRIKES AND LOCKOUTS) was a severe blow to the movement for the substitution of trade agreements, with provision for the arbitration of trade disputes, for the more violent and wasteful method of trade war. This experience together with the temporary breakdown in 1910 of the compulsory arbitration scheme in New Zealand, and with experiences in Australia and Canada, led many to the conclusion that, although conciliatory methods may prevent open conflict and the cessation of industry in a considerable proportion of labor disputes, they will not prove successful with regard to many vital points. The experience seemed especially to show that it is impossible successfully to bind both parties to abide by the decisions of an arbitration board. Undoubtedly compulsory arbitration as carried on in Australia and New Zealand has brought about an adherence of both parties to the findings of the arbitrator in a greater proportion of cases than the voluntary method followed by the English plan of trade agreements. Since the cessation of many businesses, especially those of transportation and communication and other public service activities, has become intolerable under modern conditions of life, it would seem inevitable that some form of guaranteeing the continuance of these industries will be developed. The English and Canadian methods are voluntary with a considerable reliance on the power of public opinion to enforce a just decree. If, however, experience should show that these methods will not uniformly prevent the cessation of activities upon which public convenience and welfare very intimately depend, a more forceful method of settling trade differences will be introduced. See TRADE UNIONS AND UNEMPLOYMENT.

Following the railway strike the government established an Industrial Council, composed of representatives of both masters and men to deal with trade disputes. The consent of twenty-six prominent employers and workmen to serve on the council under the chairmanship of Sir George Askwith was secured. While this council was given no compulsory powers it was given extensive powers of mediation in the hope that a reasonable decision rendered by a body of such prominence would be accepted by both parties to a dispute.

The report of the Board of Trade on conciliation under the Trades Disputes act of 1896 and its amendment of 1898, providing for courts of arbitration, stated that the Board of Trade had taken action in sixty-seven cases in 1910; that

there were in Great Britain 282 conciliation boards, of which 265 dealt with particular trades and seventeen were district or general boards. There were reported ninety-six trade agreements, in which it was provided that failure of the respective boards of conciliation to reach an agreement should be followed by a request of the Board of Trade that it appoint an arbitrator. During 1910 eight cases were taken before the courts of arbitration authorized in 1908. These are arbitration boards made up of representatives of employer and employees, with a chairman chosen from a list prepared by the Board of Trade. The total number of cases dealt with since 1896 was 432, of which 201 involved a stoppage of work.

AUSTRALIA. The most advanced measures that have been attempted anywhere for the peaceful settlement of trade disputes have been tried in Australia. Provision is made there for special wage boards, for the organization of special arbitration boards for the settlement of trade disputes, and for the arbitration of all manner of questions by an arbitration court. Writing in the *Annals of the American Academy* for January, 1911, Mr. E. E. Olden of the University of Sydney pointed out that in Victoria 162 trades had registered under the Wage Boards act; that fifty-nine of these trades and 88 per cent. of the employees were under the wage boards. In South Australia similarly seventy-four were registered, and twenty-four of them, including 62 per cent. of the employees were under the wage boards. The act of 1908 providing for the formation of special boards for the settlement of trade disputes had resulted up to June, 1910, in the organization of 139 boards. These boards had decided ninety cases through the reenactment of awards of the Court of Arbitration, and forty-two cases by amending or varying the awards of other boards. The Court of Arbitration in New South Wales had made awards in 130 cases, and that in Western Australia in seventy-one cases. Each of these awards had affected many other disputes.

ARCHÆOLOGICAL INSTITUTE OF AMERICA. A learned society founded in 1879 in Boston for the purpose of promoting archæological research by founding schools and maintaining fellowships, by conducting explorations and excavations and by aiding in those conducted by others, by publishing the results of archæological research, by holding meetings for the presentation and discussion of archæological subjects, and by maintaining courses of public lectures. The activities of the institute include various fields of archæological interest, especially Greek, Roman, Oriental, and Renaissance. It conducts researches in the United States, Mexico, and Central America. Its chief publication is the *American Journal of Archæology*, which contains original contributions, reports, and summaries of archæological work in all parts of the world, together with a bibliography of archæological books. The schools maintained by the institute are the American School of Classical Study at Athens, established in 1881; American School of Classical Studies in Rome, organized in 1895; American School of Oriental Study and Research, founded in 1900; and the School for American Archæology, founded in 1907. The Carnegie Institution of Washington supports a fellowship in archæology in the American School of Classical Studies at

Athens, and grants \$1500 annually for excavations.

The summer field session of the School of American Archæology was held at El Rito de los Frijoles, near Santa Fé, New Mexico. Excavations were begun here in 1908 and were in progress during the year at Tyuonyi in the Pueblos and Cliff Dwellings neighborhood. Excursions were made to facilitate the study of botanical and other conditions of the tribes dwelling in the vicinity. During August lectures were given on the distribution and culture of the tribes in the southwestern section of the United States; on the evolution of design as shown in ancient Pueblo art; and on the native languages and methods of recording them. A course was given by Dr. Lewis B. Paton, formerly director of the American School in Jerusalem, on the ancient Semites, to afford an opportunity of comparative study of cultures developed in semi-arid regions in the Eastern and Western continents. At the close of the session, opportunity was given to visit the Pueblos, Taos and Acoma, and the government excavations among the cliff dwellings in the Mesa Verde National Park, Colorado. The institute holds annual meetings. The meeting of 1911 was held at Pittsburgh, December 27-29, in conjunction with the meeting of the American Philological Association. Papers were read on the work of the institute, and the work of the various schools of the institute, especially in Athens and Rome. For a more detailed account of the work of the various schools, see article **ARCHÆOLOGY**. Professor Francis W. Kelsey of the University of Michigan was reelected president.

ARCHÆOLOGY. The past four years have been a period of consistent investigation if not one of spectacular finds. The work, however, has not been without illuminating discoveries, and among these several perhaps should be noted here. For the students of the "New Greek" comedy the year 1907-1908 was one of peculiar interest, for during that winter the excavations at Antinopolis in Egypt brought to light two sheets of manuscript containing each thirty lines from the *Perikeiromene* of Menander. The manuscript was early, dating from the third or fourth century A. D. In the following year there turned up, during the Italian excavations at Phaistos in Crete, a clay disk which has ever since held the attention of scholars. So far as can be made out from the pictographs, which cover both sides in the form of a spiral, the disk exhibits a hymn of some sort to some pre-Hellenic deity. While the year 1909 yielded nothing startling in the subject of archæology the next saw the inception of two excavations which promised to bear great results. The former of these was the excavation at Cyrene and the latter that inaugurated by Professor Butler of Princeton at the much-coveted site at Sardis. Of these two undertakings more will be said in the discussion of this year's work in archæological fields.

MESOPOTAMIA. The Germans have continued their excavations at Assur. During trial diggings in one part of the site remains of Parthian houses were encountered and among other objects brought to light were a gypseous stone plate bearing on one side an inscription five lines in length, and on the other a small relief representing a scene of worship, and a fragment of a statuette in alabaster representing Herakles. This is the second statuette of Herakles found

at Assur. On the site of the Assur temple a fragment of basalt bearing an inscription of Salmanassar came to light, and while widening the terrace of sun-dried brick in front of the temple the excavators came across remains of ancient paving, canals, and a basin. These investigations showed that the basin and paving, which for the most part owed its existence to Sargon, had to a certain extent been there in the time of Shalmaneser I. Older canals belonging to the time of Samsiada or Irišums were also discovered. To the north of the Parthian palace Parthian houses were cleared out. These belong to the latest Parthian period and were arranged on a street having a northerly direction. Roman copper coins were discovered among the ruins and, inasmuch as one bore a head of probably the Emperor Alexander Severus who was in Mesopotamia in the year 231 A. D., it is probable that Roman influence had penetrated into the country at this time.

At *Babylon* the Germans have also been particularly active. While at work on the northwest trench, so-called, the excavators brought more clearly to light the top of the wall in that locality. This wall was followed to the north about sixty meters and to the south about 150 meters. The Ishtar gate was as well investigated. During excavations near the eastern wing wall several graves were found. One of these contained a clay coffin, which seems to have had a wooden cover; while with the burial was a rich find of gold and other beads; several glazed and unglazed clay vessels, hairpins, and various other objects of bronze came to light. Among the more notable of the smaller objects was a tablet or amulet of porcelain with a figured decoration on one side. After this, work was resumed upon the northwest trench and extensive wall remains were discovered. These were of baked brick and lay between the remains of the two mighty walls, which were respectively 7.30 meters and 11.25 meters in breadth.

At the same time that this work was progressing investigations were being carried on about the Arachtu wall, which was followed up to the fortification wall of the southern city. During this work it was found that the chief street of Babylon crossed the stream near the Nabonid gate. It is believed by the excavators that the processional street went over at this point by a bridge. It was also discovered that a wall of Nebuchadnezzar ran along parallel to the Arachtu wall for a considerable distance. In February and March excavations in the hill of *Amran ibi Ali* were carried on and special attention was devoted to the great Babylonian temple located there. It was found that the western front was 88.10 meters in length and the northern 78 meters. Both fronts were equipped with four towers—two lying to the right and two to the left of the middle of the front. In the middle is a strong door 2.20 meters broad, flanked by two triple doors.

Digging on the Street of the Processions brought to light entrances to two streets running east and west. On the procession street itself the houses bounding it were uncovered for a distance of about 180 meters. The houses were placed about seven to nine meters back from the street, while the intervening space was covered with a layer of sand. The small structures of sun-dried brick built up against them seem to have been stores. To the north where the house walls end in section *E II 22* a frag-

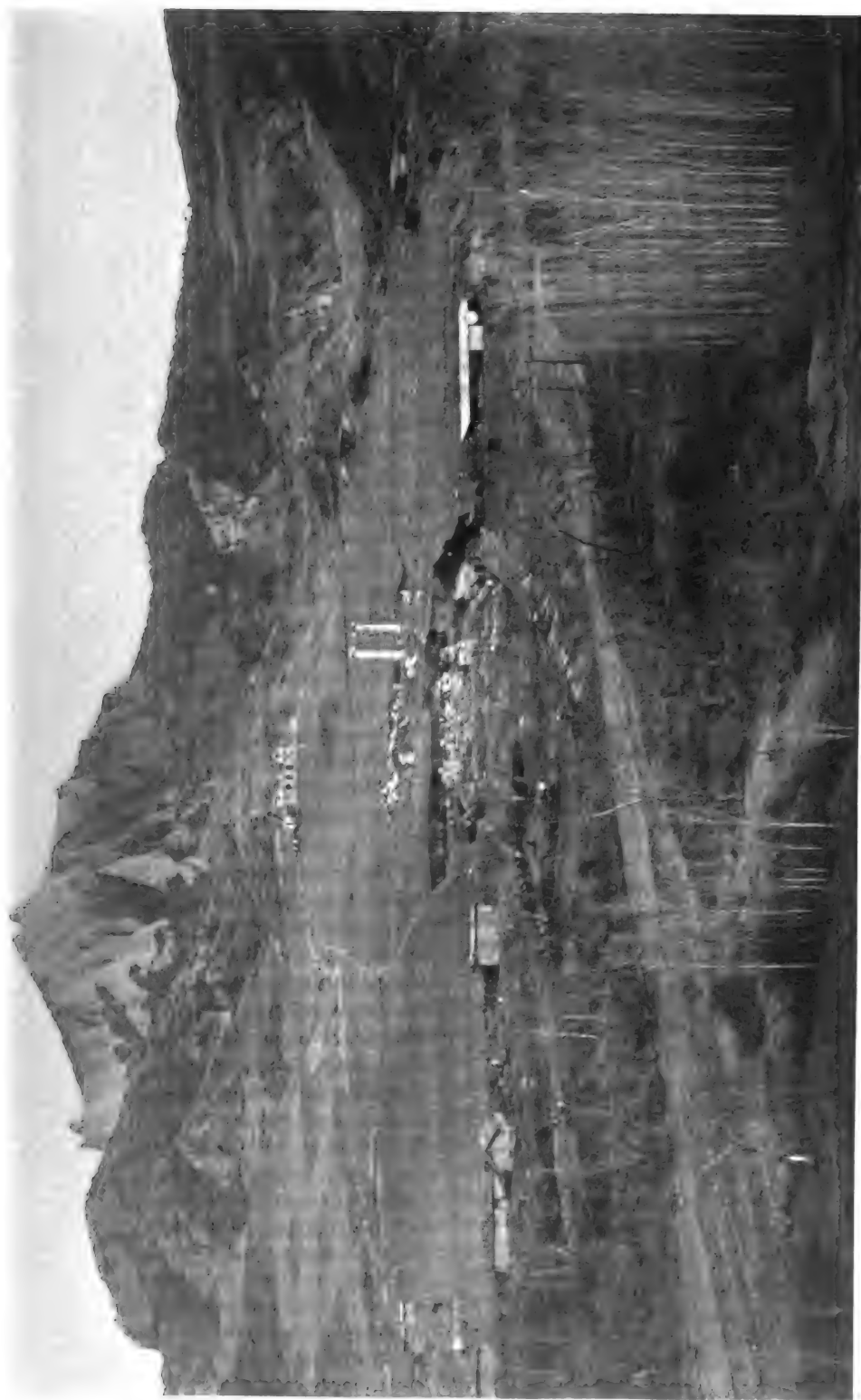
ment of a cylinder of Nabopolassar was found. It deals with the building of *Imgur Bel*.

In laying bare the street that runs north and south the front of a temple was uncovered in *A123*. It proved to be the smallest temple yet found at Babylon, measuring only 33 meters by 39 meters. On the faces of the walls of the building are towers—on the longer sides probably six and on the shorter five. These vary from 2.30 meters to 2.20 meters in breadth. The entrances to the temple are on the east and south sides, and both doors let one into a court 12 meters square. The west side of this court seems to have been the chief front. Behind it is the cella complex, which was threefold in plan so far as can be made out. In the foundation cist was discovered a small figure of unbaked clay with remains of clothing lying on the bottom of the chest in front of it.

PALESTINE. Important work has been done this year by Mackenzie in behalf of the Palestine Exploration Fund at 'Ain Shem—the Beth-Shemesh of the Old Testament. Trial pits sunk in the area between the Byzantine church and the *wely* demonstrated that this part did not contain pre-Roman remains and that the wall running north and south marked the borderline between late Arab debris on the east and the city area on the west. The older strata belong in the "Byzantine area," which is the eastern portion of the western city area. The outer wall of the old city was monolithic and strengthened with bastions; the southern gate has been found and repairs in various places suggest a severe siege at some time.

In the course of the digging much of the Semitic and earlier strata was encountered. Some of the pottery found next to the bedrock was of the Bronze Age and possibly belongs to the same people who are responsible for the megalithic monuments on either side of the Jordan. That these deposits occurring next to the bedrock are of an early period is proved by the presence among them of Cypriote Bronze Age pottery. One piece with a dead white decoration on a purplish black ground hints at Cretan influence, for this style was in use in Crete about 2000 B. C. This contact with the Mediterranean continued, for other fragments of pottery were found belonging to the time when late Mycenaean ware began to be imported into Cyprus. The pottery in question was Cypriote, and dates about 1200 B. C. Influences from Egypt as well as the Mediterranean were felt in this city, as is shown by the discovery of an alabaster vessel of the time of the eighteenth dynasty. A figurine representing the god Bes and an Astarte plaque were also recovered during the excavations. Among the more interesting of these smaller finds were a number of jar handles. Some were royal Israelitish and one of these bore the dedication "to the king, Hebron." Flint implements found along with the older Semitic pottery show that the beginnings of civilization at Beth-Shemesh were much earlier than we should be led to infer from the Bible.

The wall of the city is almost complete and incloses the top of the hill or stands upon the first escarpment. On the crest it is built of massive roughly cut stones in the lower courses and originally was topped out with smaller stones and, at one time, with sun-dried bricks. In places the wall rises to the height of fifteen feet. It was strengthened by bastions of vary-



SARDIS
EXCAVATIONS AT THE BEGINNING OF THE CAMPAIGN OF 1911
View from the West

ing width which projected only slightly from the face of the wall.

A thick layer of burned material was found over part of the town and the suggestion has been made that in this we have evidence that Beth-Shemesh was captured and burned either in the ninth or tenth century B. C. (since the remains above the burned stratum are correlated with Cypriote Aegean influences) or in the sixteenth or seventeenth century by the Egyptians. The city seems to have been inhabited without interruption from Neolithic times to the time of the Captivity. In Hellenistic times the site was abandoned and so left until the fifth century A. D., when the tradition connected with the Ark of the Covenant seems to have led to the establishment of a Byzantine monastery on the place.

EGYPT. At Abusir the Germans have discovered a cemetery, the burials of which belong for the most part to the early dynasties. A few objects belonging to the Middle and the New Kingdoms were recovered and a sarcophagus of Greek workmanship was also found. The excavations at Dimeh produced many papyri, among which were fragments of a poem, a philosophical treatise, and an account of the acts of martyrs. The cleaning out of the mortuary temple of King Chephren at Gizeh has been completed. From the fragments recovered it is estimated that the building must have contained over a hundred small statues. Before the temple was a terrace upon which stood five monuments, among which were a chapel, on either side of which were a pair of huge blocks upon which probably rested lions. The remains of another temple were also brought to light. The small pyramid at the middle of the south side of that of Chephren was examined, although no mortuary temple was discovered. It was thought to have belonged to the wife of Chephren. At Medinet Madi the German scholars found the remains of a pylon and a temple. On one wall of the latter appeared a Ptolemaic relief representing a king sacrificing to Isis, who is suckling Horus. At Memphis Flinders Petrie has been conducting excavations at the palace of King Apries. The entrance was found to be on the south side and approached across a broad fosse. Opening upon the entrance was a guardroom surrounded by a trench. To the west, beyond this, was the kitchen with the fireplaces still intact. The harem lay in the eastern part of the building and opposite the winter court of the palace. This court measured 116 by 117 feet and was protected by a roof supported upon columns nearly fifty feet in height. Beyond the winter court were discovered several halls and workrooms, while at the northern end of the palace was found the summer court with a veranda on its southern side, some fifty-five feet in height. The walls of the palace have the enormous thickness of fourteen to twenty feet, and the building covers about two acres of ground. During the excavations a large number of seals came to light of Egyptian, Persian, and Greek origin. The most interesting represented two men, one with the Hittite spread eagle behind him and the other evidently his king, taking an oath over a kid. In the temple of Ptah two sanctuaries—one of Amasis, 550 B. C., the other of Amenhotep III., 1400 B. C.—were discovered. In the former was found the best portrait of King Amasis yet known.

The work at Meroë has been carried on more extensively than ever with a force as large as

six hundred men employed at one time. As a result the temple of Amon, where the Ethiopian kings were crowned, has been entirely cleaned out. In the outer temple was found a royal dais with reliefs showing captives bound with their heels and elbows tied together behind their backs. In the same locality was also recovered a large black granite obelisk showing an inscription which the English scholars believe to be the best continuous Ethiopian inscription yet found. In the Hall of Columns the excavations produced another dais, this time cut from a single block of stone. Since glazed fragments were found near by it is thought that the dais supported a small statue. Among other finds was a fine cameo decorated with galloping horses so carved that one was white and the other black. Besides working upon the temple of Amon the excavators also completely cleared the temple of the Sun, which is situated about a mile out in the desert. In the funerary chamber on the south side were found vases filled with bones and charcoal, which perhaps belong to the human sacrifices mentioned by Heliodorus. On the walls of the building were reliefs representing men and boys being tortured and slain. Among other buildings cleaned out during the season's work was a large columned hall showing the king and queen in frescoes on the walls. In front of the entrance was recovered a massive head of bronze dating from the time of Augustus and representing possibly Germanicus. The eyes were inlaid in alabaster. Gold dust and nuggets valued at nearly \$10,000 were found in two jars; this was without doubt a part of the treasure assigned by tradition to the Ethiopians. The Nubian Archaeological Survey has lately exhibited a number of finds recently made in Nubia. These objects acquire a peculiar interest in view of the fact that the region will be submerged by the raising of the dam at Assuan. By far the most notable object was a mace about two feet in length and covered with gold foil in which were worked in relief figures of animals similar to those seen on the votive mace-heads and shields from Hierakonpolis. Judging from these finds it would seem that the predynastic and protodynastic culture of Egypt had penetrated into Nubia. At Tel el-Amarna the Germans have excavated about eighty houses, and so far as can be judged by the area now cleared the city seems to have been open in character. Though as yet but on the edge of the city the excavators came upon a street about sixty meters broad, running northwest and southeast. On either side of this street were discovered houses with courtyards, at times side by side and at times isolated. So far it has been impossible to arrange the city socially, but it can be seen that the houses of the great people did not cluster around the palace as at Illahun. Near the great houses were discovered small houses, which possibly belonged to the clients and dependents of the great people. The largest and best house yet found is that of Pa-wah, the high priest of the sun-disk in the temple of Ra. This house, which measured 75 meters by 125 meters, is located on the edge of the city and stands with its narrow front on the street. The house is enclosed by a smooth wall which is penetrated by a pylon-like structure which lets one into the gardens, where is the great pond which seems never to be lacking in the great houses. Behind the pond was discovered a small kiosk with an entrance hall and

a ramp. The interior of this building is decorated with frescoes representing the royal family in prayer before the sun-disk. That the garden was planted with trees is made fairly certain by the discovery of tree roots in the garden of another house. The house of the high priest had two façades—one fronting on the street, the other on the garden. In front of one of the street entrances was found a paved space and small benches used by the servants of the house while waiting for visitors. Behind the door was the porter's lodge, around which one passed to enter the courtyard that contained the magazines, stalls, etc. In one stall a pierced stone was found upon the ground (for securing animals), while in others were discovered cribs. Some rooms indeed contained remains of leather harness. In a separate part of the court was a row of silos. The main house was solidly built with a complicated arrangement of two broad halls and two reception-rooms, to be used the one in summer, the other in winter. The frame of the entrance door of the house was inscribed with a hymn and the name and titles of the owner. From one of the halls one could mount to the roof of the building. A peculiar feature found in many of the houses was a small, stumpy pyramid with a round depression in the top to receive the feet of bedsteads and so prevent them from sinking into the floor. In the pond in the courtyard of one house was discovered the endpiece of a falence bead necklace bearing the name of Amenhotep III. Evidences of later settlements were also found at Tel el-Amarna.

ASIA MINOR. The work of the Germans at Didyma in 1911 has determined the street leading to the temple. The last milestone was located about 250 meters from the temple and the inscription upon it narrates in both Greek and Latin that Trajan completed the street in the year 101-02. Through a gate one entered upon a finely paved street which led to the asylum that surrounded the temple. Trial diggings at this place brought to light the remains of mortarlaid walls of many houses. These were located about 100 meters away from the temple. Before the middle of the temple was discovered a circular base with two doors which marks the site of the old altar of ashes belonging to the earlier temple and mentioned by Pausanias, V. 13, 11. More than the eastern half of the temple is now cleared and the building is found to be remarkably preserved. At Miletus Wiegand's excavations are drawing to a close so that now one can make out the usual monuments of the city, as well as its general arrangement. The excavations have produced evidences of habitation reaching from the Neolithic period to the beginning of Turkish rule in the sixteenth century A. D. From a prehistoric settlement on Kilitepe came some axes and coarse pottery. The settlement lasted over into the late Mycenaean period, as is shown by geometric fragments. In the Hellenistic city the wall has been investigated for a distance of 220 meters in the southeastern part, and two great gates have been found. The general character of the city has been determined and the *insulae* have been found to measure about 29 meters by 55.5 meters, and the streets to vary in width from 4.4 meters to 4.5 meters. The excavations at the temple of Serapis have been brought to a close. The structure is third century in style. The Baths of Faustina have been found to be connected with

the stadion by a great colonnaded hall. In the Baths the apodyterium has been located.

This year has seen the resumption or rather continuation of the excavations of the Americans under Professor Butler at Sardis. Since the early part of the season was very cold and the work would have been hampered by the heavy falls of snow, the efforts of the expedition were concentrated at first on the digging out of the tombs in the mountainside across the river Pactolus. This work was in the hands of Mr. Buckler, who opened over two hundred tombs, which averaged six burials to a tomb. From these excavations a large number of objects of gold, silver, and bronze were recovered, together with a great deal of pottery. That these burials go back to a remote past is shown by the finding of pottery resembling that of the Mycenaean age in Greece, and the duration of the burials is evidenced by the presence of sherds resembling the black-figured, red-figured, and later pottery of the fifth and fourth centuries. In fact, in some of the tombs were large urns, containing charred bones, which bear inscriptions in ink and which cannot be referred to a period earlier than the first century B. C. Fortunately only a few of the tombs have been rifled in modern times, and although they have been cleared out in antiquity for subsequent burials, the objects which had been in the burial chamber had been deposited outside the tomb, so that its history could be followed. Only one tomb was found that had not been so treated and its undisturbed condition was due to the fact that a floor of a tomb over it had caved in and so protected it. In this tomb was discovered ware resembling Rhodian and Mycenaean ware. Most of the un-rifled tombs contained only unglazed ware, with occasional specimens of small, black-glazed pottery with decorations in yellow and white paint. Some unglazed ware with designs in black and brown was also found. In later times, when incineration was the custom, the urns containing the charred bones were placed on the couches already strewn with the bones of earlier burials.

Gold and gems turned up in places where they were least looked for, and rarely in connection with good pottery. The resemblance that the jewelry bears to Etruscan work suggests that there may be some historical connection to be seen here. The seals found in the tombs are very beautiful and, though some belong to Hellenistic times, the majority date from the Graeco-Persian period. Most of them are of chalcedony and are mounted in gold or silver.

Near the edge of the bluff that rises abruptly from the river remains of crude walls were encountered which seem to belong to houses. The foundations were of stone, the walls of sun-dried bricks, and the roofs were covered with tiles, which in some cases were decorated with a burned-in design. The simas were modeled in relief with geometrical patterns or lotus designs or animal figures, such as lions and horses.

As soon as the weather permitted, on February 16, work was resumed upon the clearing out of the temple, which was begun in 1910. The fact that the temple lies on the side of a hill made the excavation more and more difficult, as the work progressed, for each meter cut back meant a distinct deepening of the soil until a depth of about ten meters was reached. By the end of the season the cella of the temple had been cleaned and the twenty columns on the south side freed. On the northern side eighteen col-



TOMBS ON THE HILL ACROSS THE PACTOLUS



**EXCAVATED COLUMNS OF THE TEMPLE
SARDIS**

urns were dug out, while on the eastern end two columns were cleared and four brought to light. All that is now left to do in order to lay bare the whole temple is to excavate the six northern columns of the eastern portico. As the work went on it was found that the entire cella had been used at some time—probably when the walls were partly buried—as a cistern. For this purpose the interior had been dug out and the bottom lined with concrete. In the opisthodomos it was almost two meters in thickness. The architectural details of the temple show that the temple was erected at the beginning of the fourth century. Evidence turned up in 1911 which seems to indicate that the building was in use in the second century A. D.

Most of the coins found belong to Hellenistic, late Roman, and Byzantine times. Fifty-four beautifully preserved silver tetradrachms were found in the vertical joints of the floor near the statue's base, where they probably lodged when they were thrown at the feet of the statue. They belong to the successors of Alexander and Alexander himself. A silver coin of Croesus was found below the base of the statue.

Not the least interesting of the finds made was the discovery of a stele with a long Lydian inscription upon it.

GREECE. The Greek Archaeological Society have conducted some interesting excavations in Athens, where to the northwest of the Acropolis, on the site of the Bouleuterion, several important finds have been made. One of these is a fifth-century marble head of a youth, resembling the type of the Apollo of the Omphalos. Behind the supporting wall behind the Pnyx Kourouniotis found fragments of pottery which show that this wall goes back no further than the end of the fourth century B. C. Some twenty-four feet inside this wall another retaining wall was encountered, which is considerably older. In the Agora were found a portico almost perfectly preserved and the torso of a boy similar to the Eleusis boy. The work of Brueckner in the neighborhood of the Dipylon cemetery has thrown much light on topography and laid bare an interesting system of irrigation. Particularly noteworthy among the finds is a series of forty-four ostraka, eleven bearing the name of Thucydides the son of Melesias, the opponent of Pericles, who was banished in 442 B. C., twenty-six that of Cleidippus the son of Deinias, who led the fleet to Lesbos in 428 B. C., one of Teisandros, the son of Epylikos, who was the father-in-law of Pericles's eldest son.

At Delos the French have completed their excavations at the sanctuaries of the foreign gods and the portico of Philip. The latter building was found to have been largely increased in size in the second century B. C. It was then used as a place for exhibiting wares.

In northern Greece, at Pagasæ, a second tower, filled with rubbish containing many painted stela of the character previously found in this place, has been excavated. About a hundred in all were found and some of these were very beautiful. At Laspochorion, also in Thessaly, a number of geometric tombs were found. At Gonnus a round temple of Athena and fragments of a statue of the goddess bearing the name Xenocles—perhaps the sculptor—were discovered.

In the Peloponnesus one has to record activities in several localities. At Tiryns the Germans have recovered Mycenaean wall-paintings of

great interest. Though found in small pieces the pictures have been put together enough to allow one to see that the decoration was a frieze of figures considerably under life size, representing a boar hunt. Boars are shown being pulled down by dogs or being caught in nets. The scene takes place amid tall reed, while women in chariots watch the hunt from the background. The work is decadent and shows the influence of the great period of Cretan art, the late Minoan I. The French have finished their work at the temple of Athena at Tegea. On the island of Cephalonia Cavvadias believes that he has found evidence for three successive strata of culture. The first is neolithic (dating about 3000 B. C.), and is characterized by rude monochrome pottery. The people of this period lived in wooden huts before which or in the floors of which they buried their dead. The second culture, following about a thousand years later, is pre-Mycenaean. The last culture represented is Mycenaean. Cavvadias believes, from the discovery of some hundred Mycenaean tombs, that this island is to be considered the home of Odysseus. The hero seems to be acquiring as many domiciles as Homer! At Goritsa in Corfu very interesting finds have been made. Here a temple has been discovered, the sculpture of one of whose pediments is almost completely preserved. There were originally eleven sculptured, vertical slabs, of which eight remain. In the centre of the composition is a huge Gorgoneion with Chrysaor on one side and Pegasus on the other in much smaller size. Then on either side come a pair of huge panthers separating the central group from the other figures. The last block on the left shows a fallen warrior with his head in the corner of the pediment. The block next to the panther on the right of the pediment exhibits the nude figures of Zeus and a giant. The style of the work is related to the Argive-Corinthian.

The English excavations in Melos have shown interesting points of contact between the island and the mainland, as well as Crete. An interesting find was a series of eight or nine intramural infant burials. The bodies were placed on jars belonging to the geometric period. In Crete, at Gournia, the expedition of the Philadelphia Museum reports the discovery of about 150 cramped burials in inverted jars. At Haghia Triada, in the same island, the Italians have found perhaps the oldest market-place in Greece. At Tylissos the Greeks have discovered remains of a palace and culture thought to be even richer than the culture found at Knossos. In Cyprus Richter has made finds of great archaeological and ethnographical importance.

AFRICA. At Cyrene the American expedition has resumed the work of last year. A group of Ptolemaic buildings has been uncovered, while on the slope of the hill about 3000 terra cottas, of the fifth century and earlier, have been found. Some fine sculptures also have been recovered. The work of the year has been clouded by the murder of DeCou by a party of Arabs.

ITALY. At Ostia a number of Republican tombs have been opened. In the theatre was found a fountain statue of Aphrodite resembling the Venus of Arles. In the Baths of Diocletian two new swimming baths have been discovered.

NORTHERN EUROPE. The discovery of a Mithras sanctuary is reported near Strassburg.

ARCHÆOLOGY, AMERICAN. See ANTHROPOLOGY.

ARCHITECTURE. INTRODUCTORY. The three years previous to 1911 have been marked, in general, in both Europe and the United States, by a normal architectural activity, evidenced in important buildings begun or completed, and in the active prosecution of work on others still unfinished. In the first category are the various international exhibitions held at Brussels, London (the Franco-British followed by the Japanese), and Buenos Ayres, and the Yukon-Pacific Exhibition at Seattle, Wash., the great Victoria and Albert Museum at London, the Palace of Justice at Rome, and the brickwork of the Campanile of St. Mark's at Venice. In the United States the monumental Pennsylvania railway station at Washington and the still greater terminal of the same railway in New York were completed; in New York the new municipal offices were begun, and the 700-foot Metropolitan Tower opened for occupation. The Hague Peace Palace, the London County Council Building, the colossal Victor Emmanuel II. monument in Rome, the Campanile of the Church of the Sacred Heart (Sacré Cœur) in Paris, the Cathedral of St. John the Divine at New York, and the New York Central Terminal Buildings, were advanced towards completion and a vast number of university and library buildings of greater or less importance were undertaken, carried forward, or completed, especially in the United States, England, and Germany. Particularly worthy of notice has been the new architectural activity in Argentina and in South Africa.

In the United States the volume and variety of new architectural work, which rose rapidly after the financial depression and panic of 1907, have far surpassed those in any other country, and have included many edifices of first-rate importance. In this activity the recrudescence and almost complete reconstruction of the city of San Francisco, devastated by the earthquake and fire of 1906, stand conspicuous.

These years have also been notable for the continued progress in and expansion of the uses of concrete, especially of reinforced concrete ("ferro-concrete," "ciment armé") in architecture as well as in engineering, and in the United States, for the continuance of the practice of erecting office buildings of excessive height. Another feature of the period under discussion has been the widespread and increasing interest in the problems, the science, and the art of town planning and of all forms of municipal improvement, particularly in the planning of garden-villages and semi-rural suburbs. The most notable manifestation of this interest was in the town-planning congress at London in 1910, reported in the YEAR BOOK of last year.

ARCHITECTURE IN 1911. The past year has witnessed the continuance of the general tendencies of the preceding year, with no great change, in either Europe or America, in the amount or character of the architectural activity. The use of reinforced concrete steadily increased, and it is clear that it has perceptibly invaded the field of steel construction, as well as that of masonry in brick and in stone. The result has been an organized effort in certain quarters to discredit it on account of the disastrous collapse of buildings erected in too great haste with this material, but its extraordinary advantages when rightly used have become so evident that it is clearly destined to become the distinctive building material of the

twentieth century, as iron and steel were of the nineteenth.

During 1911 there was manifested also an unusual interest in fire prevention. The increasing congestion of population in large cities, the growing complexity of life, the multiplication of machinery and especially of electric appliances and internal-combustion motors, have greatly increased the fire risk, and disastrous fires in buildings constructed in a manner formerly considered fireproof have stimulated research and invention in the effort to combat these increased risks. Many cities, in both Europe and America, have amended or have taken steps towards amending their building codes; and the tendency is everywhere towards new and superior standards of construction, especially in the United States, where fire losses have always been so great and so frequent.

The year was also marked, like its predecessor, by great and widespread interest in the problems of city planning and suburban development, although there was no great international congress on the subject to compare with that in London in 1910. England and Germany again led in activity in this direction, though the British Town-planning act has not produced as yet the important results expected of it. (See MUNICIPAL GOVERNMENT.) International congresses and exhibitions of various kinds were held in a number of places; a Hygienic Congress and Exhibition at Dresden; two exhibitions in Italy to celebrate the jubilee of Italian independence—one of science and industry at Turin, the other of fine arts at Rome—and at Rome the Eighth International (triennial) Congress of Architects; besides national, provincial, and municipal exhibitions and conferences on subjects related to architecture in many cities on both sides of the ocean.

EUROPEAN ARCHITECTURE: GREAT BRITAIN. The improvement of London was materially advanced by the final completion of the Queen Victoria Memorial in front of Buckingham Palace in the axis of the Mall, the masterpiece of Sir Thomas Brock; by continued work on the Kingsway and Aldwych, by the purchase of a fine plot for new government buildings between Whitehall and the Victoria Embankment, by the construction of a new approach to the Cathedral of St. Saviour, Southwark, from the end of London Bridge, and by the opening of a new thoroughfare leading to the new wing of the British Museum, to be called British Museum Avenue. There was continued activity in many lines of building, the most important single undertaking being the London County Hall, for whose basement story—the costly foundations having been at last completed—the contracts were let for the sum of £104,000, and work actively prosecuted. The architect, Ralph Knott, prepared a new design for the façade towards the river, recessing the central portion with a quadrant at each end, to the great enrichment of an otherwise rather tame composition. The new Post Office, by Sir Henry Tanner, was completed on King Edward Street, the American system of steel-frame construction being employed, with concrete floors and fireproofing. The extension of the British Museum, by J. J. Burnet, was externally completed, presenting an imposing front of twenty-one Ionic columns between two massive terminal pavilions adorned with sculptures by Sir George Frampton. Progress was made on the additions to the National Gallery, and on the

great Wesleyan Memorial Hall (Lanchester and Rickards) in Westminster, the concrete dome over the central portion being completed; on the new King's College Hospital on Denmark Hill, by W. A. Pite, which, when completed, will comprise nine three-storied blocks of wards besides the administration wing; and on other less important works. A new Y. M. C. A. building was nearly completed on Tottenham Court Road, from designs by C. R. Rowland Plumbe, F. R. I. B. A.; it is the largest and most complete structure of its kind in the kingdom, constructed largely of concrete and steel, and comprising a college, clubrooms, and lodgings for 1000 men, besides the usual association meeting and reception-rooms. The cost was \$1,000,000. The palatial Royal Automobile Club on Pall Mall, by Mewes and Davis, was opened, and a new opera house, said to be unusually commodious and elegant, was completed for Oscar Hammerstein, the New York impresario. On the new Kingsway the Church of the Holy Trinity was completed from designs by Mr. John Belcher. A competition for a new municipal building for Marylebone resulted in the award of the work to Mr. Edwin Cooper, F. R. I. B. A. Among many other enterprises may be mentioned a new building for the Zoological Garden in Regent's Park, the new Electrical Engineers' Club, the Polytechnic Hall on Regent's Street, the London and County Bank (Godfrey Pinkerton, F. R. I. B. A.), and a new reredos for St. Paul's Cathedral. The project of the proposed St. Paul's Bridge excited vigorous controversy with respect to its exact location and alignment, and the question has apparently not yet been settled. An important educational measure was the decision to consolidate the schools of architecture of London University and King's College, under the general direction of Prof. F. M. Simpson.

In other cities of the kingdom there has been considerable activity in building. The great choir of Liverpool Cathedral has been materially advanced, the walls having been completed and the vaulting begun. In the same city the palatial building of the Royal Liver Friendly Society, costing \$3,500,000, was opened in July. At Manchester an important competition was held for the proposed new art gallery and library, for which 220 competitors were entered. The prize was awarded to Messrs. Crouch, Butler, and Savage, for a dignified, though not strikingly original, design in classic style. In the same city a new botanical library was erected for the university, and the Y. M. C. A. building completed (Rowland Plumbe). Another important competition, that for the Coventry Municipal Buildings, was awarded to Messrs. Garratt, Simister, Buckland, and Farmer of Birmingham. There was considerable building done for the various universities and colleges; at Cambridge, Mr. T. G. Jackson's Museum of Archaeology and Ethnology was partly completed and the recently discovered fragments of Inigo Jones's choir screen for Winchester Cathedral were restored and set up in it. A building for lectures was completed by Hubbard and Moore. Buildings by Messrs. Tait and Harvey were erected for the Royal Albert Memorial University College at Exeter; at Newport a new Technical Institute by Charles F. Ward; at Hull, elaborate buildings for the Hull Training College by Crouch, Butler, and Savage; at Sandhurst extensive new buildings for the Military College, by H. B. Meas-

ures, F. R. I. B. A., were begun, to have a frontage of one thousand feet and to cost \$1,250,000. At Oxford the High Street front of the University College was restored; a new building by Basil Champneys for Oriel College opened; the new quadrangle of Brasenose College, by Hayward and Wooster, was completed, and the Union Society's building, by Mills and Thorpe, occupied. At Winchester the extensive repairs to the cathedral, carried on during the past three years under the direction of Mr. T. G. Jackson, R. A., were completed, at a cost of \$500,000. At Bristol, the new surgical wing to the Royal Infirmary was completed by H. Percy Adams and Charles Helder. Important competitions were held for the Welsh National Library at Aberystwyth, won by S. K. Greenslade, and for the Welsh National Museum at Cardiff, won by A. Dunbar Smith and C. C. Brewer; and in the latter city the Glamorgan County Hall was completed, by Harris and Moodie. At Dublin, the new Royal College of Science was opened in July, destined to form part of a group or block of buildings with certain government offices; the architect was Sir Thomas Deane, R. H. A., associated with Sir Aston Webb of London. Glasgow reports the opening of the fine new Mitchell Library on October 16 (W. B. White, F. R. I. B. A.) and the erection of the buildings by Walker and Ramsay for the National Scottish Historical Exhibition in West End Park. In Edinburgh, the fine new chapel of the Order of the Thistle, under construction for two years, as an addition to the south transept of St. Giles Church, was completed and consecrated (Sir R. S. Lorimer). Other architectural notes from Great Britain are the establishment at Birmingham of a new university lectureship in town planning, and the appointment thereto of Mr. Raymond Unwin; the filing of seven applications for new civic plans under the Town-Planning act; much activity in suburban and garden-city development schemes at Birmingham, Sheffield, Halifax, Hull, Rochdale, Manchester, Barrow-in-Furness, and other towns; and the restoration of the choir of Dunkeld Cathedral, Scotland.

GERMANY, FRANCE, ITALY. The German architecture of 1911 displays less of the bizarre eccentricity of the *Moderne Kunst* movement than usual, but is characterized by frequent lapses into a dull and heavy style, which is neither classic nor modern. The best designs are those of factories and utilitarian buildings, and in some cases of funereal monuments. The Bismarck monuments have continued to multiply, and the competition drawings for them show almost invariably an extravagant straining after effect which is sometimes brutal and often depressing. The suburban houses built in 1911 were often interesting and full of picturesque character, and their interiors frequently charming in effect and almost always original and striking. Engineering architecture produced some fine projects and executed some highly satisfactory designs for bridges, as at Cologne and Dresden. A few interesting and satisfactory public buildings were completed in 1911 (or in 1910 not hitherto reported): at Berlin a great municipal building on the *Judenstrasse*, by L. Hoffmann, a severe Doric structure with central tower; a picturesque and extensive building in the Zoological Garden for concert hall, restaurant, etc., by Jurgensen and Bachmann; the Kaiser Wilhelm Academy, by

Cremer and Wolfenstein, a simple and dignified semi-classic edifice; by the same an immense edifice for the Admiralty Courts. In unpleasant contrast with these is the Fuggerhaus, containing offices and shops, of clumsy and ineffective architecture (Leschnetzer and Lipp); while on the other hand, the Brandenburger Landversicherungs offices, by H. Röhlde, are an interesting and successful design, and the same may be said of the dignified offices of the Berlin Gas Works, by L. Hoffmann.

At Dresden the International Hygienic Exhibition presented a group of buildings of varying merit by Bender, Mengel, Hohrath, Betzan, and others. The Chamber of Commerce (1910), by Lossow and Kühne, in the same city, deserves mention; and in Munich the very interesting additions to the Bernheimer Company's premises, completed in 1910, the German Museum of Natural Sciences, by Gabriel and Seidle, the new buildings in the Zoological Gardens, and the Customs and Taxes office, by H. Kaiser. Competitions (among many others) were held for a Bismarck monument at Bengenbrück, won by Professor Hahn of Munich; for an international exhibition in 1913 at Leipzig, for which six hundred contestants were entered, won by C. Wachneck of Eilenburg; for the remodeling of the Alt St. Petersplatz at Strassburg; for a savings bank at Bonn; for the laying out of the Parkring at Düsseldorf, and for a Catholic church at Sablon near Metz, won by H. Neuhäus of Berlin. An extensive royal palace was erected at Posen (F. Schwedte of Berlin) in Romanesque style, and a new opera house at Hamburg, costing 2,000,000 marks, by E. Schandt of Berlin. The jubilee celebration of Bozen was the occasion of erecting several ugly blocks of new houses, by G. Notte, a savings bank, and other buildings. The most eccentric *Art Nouveau* product of the year was a skating rink in Berlin on the site of the Admiralty Gardens, by Schwetzer and Deepenbrock, with Doric columns fifteen diameters high.

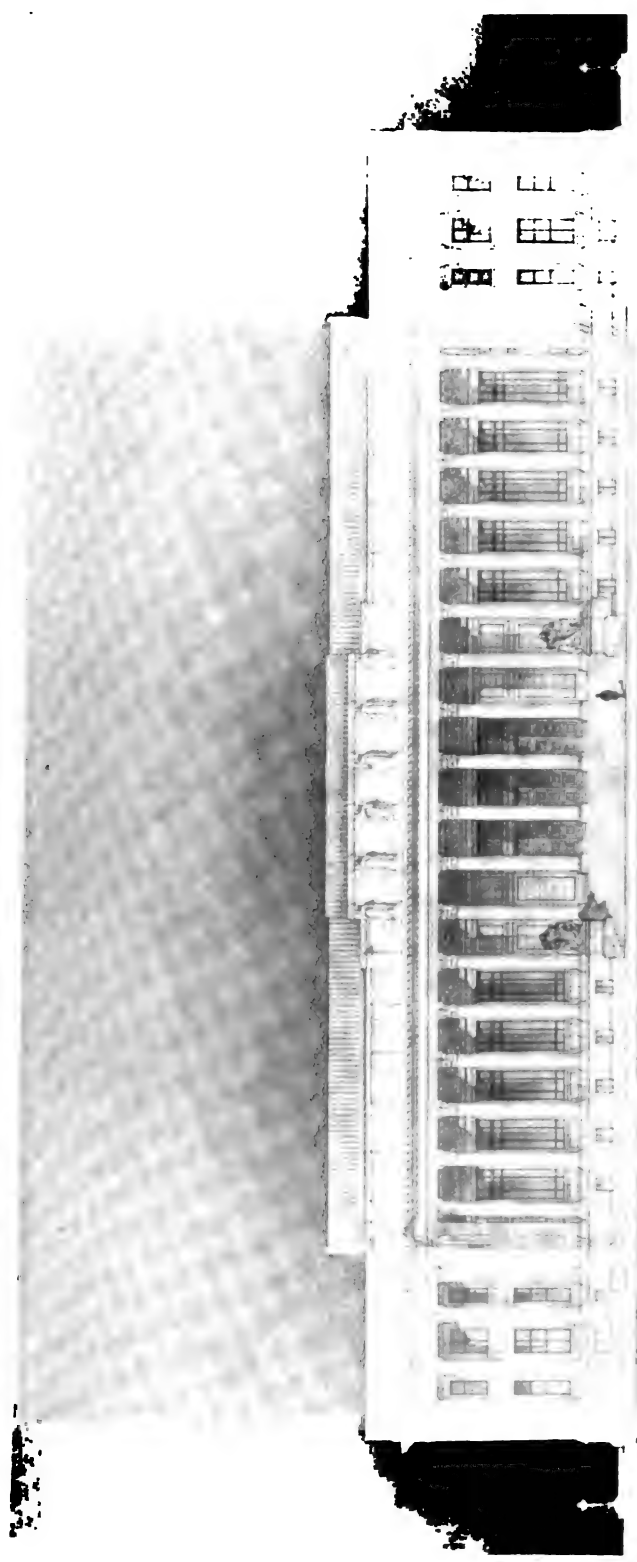
Vienna erected a number of highly interesting buildings in various phases of the "New Art": particularly noticeable were a domical church by the veteran Otto Wagner, in a suburb, another domical church in the Central Cemetery, and a city museum, both by Max Hegele, a designer of great taste and resource; a building for a women's industrial society, by Paul Hoppe, and the beginning of a new concert hall and academy of music. Synagogues, municipal tenements of excellent design, asylums, banks and theatres, were reported from Trieste, Prague, Budapest, and other Austrian cities. At Budapest the manifestations of the New Art were particularly virulent, though its chief apostle, Bela Lajta, is a designer of undeniable, if misdirected, talent.

There is little to report from France, where only a moderate building activity has existed. Private houses, theatres, banks, and hospitals, a few churches and business buildings, form the bulk of the year's work, but there was little or nothing of forthcoming importance reported in the architectural journals. In Italy the jubilee exhibitions at Rome and Turin were disappointing architecturally, and the foreign pavilions at Rome particularly so. The American pavilion of modest and almost homelike plainness, but refined in details, was in striking contrast to such eccentricities as the Austrian and some others of the pavilions. The great

national Victor Emmanuel monument was nearly completed, the colossal equestrian statue of the king, by Chiaradia, was set up and the monument formally dedicated. The new Victor Emmanuel Bridge was opened to the public. The eighth International Congress of Architects was held in the Palace of the Capitol, which, with its neighboring palaces, as well as the Castle of Sant' Angelo (Hadrian's tomb) were made parts of the exhibition. At Messina a new temporary town was built, with rows of timber-framed stuccoed houses, and a Royal Commission appointed to lay out the new city for permanent construction.

Elsewhere in Europe there was no remarkable activity. Competitions were held in Athens for a new court house, in Sofia (Bulgaria) for a new prefecture; at Constantinople, new buildings for the American Robert College, with a new layout for the grounds, were begun or carried on, including a steel frame engineering building, the first of its kind in the empire, and new buildings for the American Girls College (by Rutan of Boston).

THE UNITED STATES. The year 1911 was a normal year as to the volume and importance of the work undertaken, carried on, or completed. The total volume was enormous. In New York alone the permits for new buildings totaled an estimated cost of between \$150,000,000 and \$200,000,000. Only the most important works can be mentioned. In New York the completed choir of the Cathedral of St. John the Divine was dedicated, the palatial Public Library was completed and opened to the public, the Merchants and Manufacturers' Exchange was completed and other parts of the colossal group of the buildings of the New York Central Railway Terminal were advanced towards completion (Warren and Wetmore, Reed and Stem); the many-storied municipal offices continued, the steel frame being completed (McKim, Mead & White); the 760 foot Woolworth building by Cass Gilbert was begun; the corner-stone was laid of the imposing new St. Thomas Church, on Fifth Avenue, by Cram, Goodhue & Ferguson; several great hotels completed or carried forward towards completion (Hotels Rector, Ritz-Carlton, Vanderbilt, Alpine, addition to the Martinique); several theatres were completed in Manhattan, Brooklyn, and Jersey City (Cohan, Playhouse, Folies Bergère, National, Shubert, Orpheum); a new Roman Catholic church was dedicated—the Holy Trinity, by J. H. McGuire, with an interesting dome in Guastavino vaulting; the new South Church (Reformed), on Park Avenue, by Cram, Goodhue & Ferguson, was opened, an interesting Perpendicular Gothic design; and several new blocks of sanitary tenements—the Vanderbilt, Shively, etc. At Philadelphia the new Wanamaker store extension by D. H. Burnham was completed; also the new Rush Hospital, by Brockie & Hastings; the new Philadelphia Hospital, by Johnson, Wilson, Harris & Richards; and the Church of St. Francis of Sales, by H. Dagitt, was advanced towards completion. The third National Town-Planning Conference was held at Philadelphia in May. At Chicago the fine new Northwestern Terminal was completed and opened. At Washington commissions for preliminary studies for the Lincoln national monument were given to Henry Bacon and to J. R. Pope of New York; and at San Francisco Messrs. Polk, Faville and Ward



FRONT ELEVATION

FRONT ELEVATION OF THE "TEMPLE OF JUSTICE" FOR THE WASHINGTON STATE CAPITOL

ONE OF A GROUP OF MONUMENTAL BUILDINGS TO BE BUILT AT OLYMPIA

From the drawings of the Architects Messrs. Wilder & White, New York

were appointed a commission on plans for the coming Panama Exposition. An important competition for a new capitol at Olympia, Wash., to cost \$5,000,000, resulted in the award of the first prize to Wilder & White of New York. The United States government held competitions for post offices in New Haven, Conn., Newark, N. J., and other places, began the erection of a great post office at New Orleans (Hale & Rogers), and advanced the work on the new post office at New York (McKim, Mead & White). The United States court house at Cleveland (A. Brunner), the State Library and Supreme Court at Hartford (D. Barber), the Mahoning county court house at Youngstown, O., by Mosley & Boucherle, and a new municipal building at Trenton, N. J. (S. Roberts), were completed. There was much building activity in the South; new railway terminals and business blocks, hotels, etc., were erected at Norfolk, Va., New Orleans, La., Nashville and Chattanooga, Tenn., Birmingham, Ala., Atlanta, Ga., and other cities. Many universities and colleges added new buildings, Princeton in particular with its new Holder Tower and dormitories and new graduate school, and Columbia with its new Hall of Philosophy and Avery Library and School of Architecture. The building of country houses, large and small, was in the aggregate enormous; particularly noticeable was the work done in the suburbs of Philadelphia and the improvement in domestic architecture in the South. Fireproof construction even for houses of modest size and cost was increasingly common.

ELSEWHERE. Australia has determined to build a new capital city at Yass-Canberra and has opened an international competition for the planning of the new city. At Wellington, New Zealand, a new parliament building has been begun from plans by John Campbell the government architect, and Claude Paton. There has been great activity in South Africa, especially at Pretoria, the capital, and at Johannesburg. At the capital the imposing new government buildings on Meintjes Kop, by H. Baker, have been completed and a new railway station, college and normal school begun or carried on. The new Courts of Justice at Johannesburg were nearly finished and at the same place a memorial was begun to the Rand regiments (E. L. Luytens) and several large stores and warehouses completed. At Durban and Maritzburg also there was much building. (See SOUTH AFRICA.) For the necrology of architects, see NECROLOGY.

ARCTIC EXPLORATION. See POLAR RESEARCH.

ARGENTINA. A federal republic on the South Atlantic coast of South America. Capital, Buenos Ayres.

AREA, POPULATION, ETC. The estimated area of the fourteen provinces, ten territories, and the federal district is 1,139,000 square miles. The census of 1895 showed a population of 3,954,911; official estimate of December 31, 1909, 6,805,684; December 31, 1910, 7,121,822 (exclusive of some 30,000 uncivilized Indians). On the latter date the federal district (city) of Buenos Ayres had an estimated population of 1,329,697; province of Buenos Ayres, 1,796,320; Córdoba, 572,898; Entre Ríos, 415,918. Estimated population of larger cities in 1911, Rosario, 201,268; in 1910, La Plata, 97,000; in 1909, Córdoba, 95,003; Tucumán, 66,000; Santa Fé, 48,000; Mendoza, 39,000; Bahía Blanca, 37,775. Immigration and

emigration in 1909, 278,148 (of whom 93,528 were Italians and 86,798 Spaniards) and 137,508; in 1910, 89,640 and 97,845. Primary instruction is free, secular, and nominally compulsory. In 1909 children of school age numbered 1,200,212 of whom forty-five per cent. attended school. Of the latter only thirteen per cent. could read and write. Of the total population over six years of age 50.5 per cent. were illiterate. The state religion is Roman Catholicism, but religious toleration prevails.

INDUSTRIES. Area under cultivation in 1909-10, about 19,500,000 hectares, of which 5,836,500 wheat, 3,005,000 corn, 1,455,600 linseed, 4,706,530 alfalfa, 572,000 oats, about 2,100,000 cultivated grass. Yield of wheat, linseed, and oats in 1909-10 in metric tons:

Provinces	Wheat	Linseed	Oats
Buenos Ayres.....	1,340,299	281,762	495,745
Córdoba	1,240,528	110,541	4,982
Santa Fé.....	470,077	207,500	4,366
Entre Ríos.....	154,508	100,697	10,799
Pampa Central	300,212	15,615	10,679
Other	60,000	500	3,000
Total	3,565,626	716,615	529,571

Areas of the leading crops in thousands of acres:

	Wheat	Corn	Linseed	Oats
1907-8	14,233	6,719	3,438	702
1908-9	14,982	7,349	3,791	1,565
1909-10	14,422	7,425	3,597	1,415
1910-11	15,452	7,945	3,716	1,980

Other crops include grapes, sugar-cane, barley, potatoes, millet, and beans. Livestock (1910): Cattle, 29,124,229; horses, 7,537,765; mules and asses, 750,167; sheep, 67,383,952; goats, 3,946,750; swine, 1,404,281.

The leading industrial business is meat-packing, carried on in the River Platte region. Manufactures include flour, butter, cheese, sugar, beer and wine. In 1910 there were 31,988 factories, with a capital of 727,591,135 pesos currency and an annual output of 1,227,549,196 pesos; persons employed, 329,490. Of the factories, 10,427, with 118,435 employees, were in the federal district.

COMMERCE. Imports and exports, exclusive of coin and bullion, in gold pesos (one peso = 96.5 cents):

	1900	1905	1909	1910
Imports	113,485	205,154	302,756	351,771
Exports	154,600	322,844	397,351	372,626

Imports and exports of coin and bullion in 1909, 67,454,000 and 1,247,000; in 1910, 37,028,000 and 1,670,000. Leading classified imports in 1909 and 1910, in thousands of pesos: Textiles, 59,924 and 68,365 (cotton, 38,731); iron and steel and manufactures, 36,575 and 43,119; vehicles and railway equipment, 31,711 and 35,095; building materials, 28,366 and 29,237; coal, stones, earthenware, etc., 21,758 and 29,237; food products, 23,015 and 27,141; agricultural implements and machinery, 16,652 and 18,922; wines, liquors, etc., 13,410 and 14,951; oils, etc., 11,853 and 13,892; metals and manufactures (other than iron and steel), 10,211 and 12,870; chemical products, etc., 10,203 and 12,290.

Classified exports in thousands of pesos:

	1908	1909	1910
Agricult. products.....	241,677	230,504	196,582
Pastoral products.....	115,118	153,548	161,007
Forest products.....	6,347	8,927	10,565
Fish and game.....	499	752	1,429
Mineral products.....	811	743	540
Miscellaneous	1,553	2,876	2,505
Total	366,005	397,351	372,626

Of the agricultural exports in 1910 raw products were valued at 186,317,291 pesos; manufactured products, 5,109,192; by-products, 5,155,136. Of the pastoral reports, ordinary animal products, 135,033,322; manufactured, 18,286,237; by-products, 2,631,327; live animals, 5,055,706. Leading exports in thousands of pesos:

	1900	1908	1909	1910
Wheat	48,628	128,843	106,039	72,202
Corn	11,934	41,557	58,374	60,261
Wool	27,392	47,246	59,921	58,848
Linseed	10,674	49,005	43,714	44,604
Cowhides	13,445	15,686	28,978	30,711
Frozen beef ..	2,459	18,081	21,066	24,527

By quantity these exports were as follows in 1910; Wheat, 1,883,592 metric tons; corn, 2,660,225; wool, 150,599; linseed, 604,877; cowhides, 120,874; frozen beef, 245,267. Values of other important exports, in thousands of pesos, in 1910: Rendered tallow and grease, 9537; sheepskins, etc., 8856; oats, 8143; frozen mutton, 6008; quebracho logs, 5604; wheat flour, 4947; bran, 4522; quebracho extract, 4429; beef cattle, 4056; meat extract, 3047.

Trade by countries in thousands of pesos:

Countries	Imports		Exports	
	1909	1910	1909	1910
Great Britain ..	99,198	109,377	80,745	80,792
Germany	44,556	61,129	41,353	45,055
United States ..	43,069	48,418	26,067	25,326
France	30,801	33,651	38,997	37,762
Italy	26,868	31,776	12,636	10,475
Belgium	13,570	19,599	41,307	30,481
Spain	9,327	10,911	3,200	2,870
Brazil	8,178	9,104	16,628	17,542
Aus.-Hun.....	2,967	3,466	1,255	1,368
Canada	1,892	2,578	.....	.....
Switzerland	2,569	2,522	.....	.....
Netherlands	2,211	2,517	6,052	4,301
Uruguay	2,497	2,262	1,364	1,534
Paraguay	1,660	1,555	150	143
Sweden	850	1,201	771	743
Norway	905	1,013	.....	.....
Chile	453	482	2,672	2,707
Denmark .....	.....	.....	1,512	1,225
Total incl.				
other	302,756	351,771	397,551*	372,626*

* These totals include grain shipments "for orders," i. e., not recorded at the Argentine ports as for any particular country, but subject to cable or other orders sent to the first port at which the vessel touches. Such shipments were valued at 135,425,696 pesos in 1908, 117,837,922 in 1909, and 103,783,235 in 1910.

COMMUNICATIONS. The first railway in Argentina was opened in August, 1857, extending twelve kilometers from Buenos Ayres. The length of railways had increased to 249 kilometers in 1865, 732 in 1870, 2516 in 1880, 9432 in 1890, 16,563 in 1900, 19,794 in 1905, 23,508 at the end of 1909, and 28,636 (18,166 miles) at the end of 1910. Of the latter number 3971 kilometers were government line, with a capital of 107,300,-

000 pesos gold, while the capital of the private lines was 874,049,000 pesos gold.

The important works of the year 1911 were the Port Argentine line of the Great Central Railway, an extension to Salado River from Bagnal of the Buenos Ayres Western Railway, a distance of 62 miles across the provinces of San Luis and Mendoza to Alvar; and the construction of a further section of the La Plata-Meridiano Quinto Railway, amounting to 180 miles. Telegraph lines reported for end of 1909, 60,903 kilometers, with 154,966 of wire. Post offices, 2953.

FINANCE. The unit of value is the gold peso, worth 96.5 cents. The paper peso, under the conversion law of 1899, is valued at .44 of the gold peso. Revenue for 1910 (gold revenue being reduced to paper), 304,679,200 pesos paper, as against 274,526,578 in 1909, 254,232,013 in 1908, and 205,341,838 in 1905. Import duties in 1910, 76,033,647 pesos gold (equivalent to 172,803,743 pesos paper). The budget for 1912, as submitted to the congress by the minister of finance, showed estimated revenue of 89,2881,681 pesos gold, 144,016,719 pesos paper, and 15,750,000 pesos paper in bonds (the total being equivalent to 362,679,631 pesos paper); estimated expenditure, 29,881,303 pesos gold, 281,445,183 paper, and 13,250,000 paper in bonds (total 362,607,236 paper). The larger items of estimated expenditure: Public debt, 28,528,982 pesos gold and 14,739,573 paper; justice and public instruction, 45,776,504 paper; interior, 43,790,135 paper; war, 29,329,905 paper; navy, 23,029,672; public works, 18,500,006; agriculture, 17,959,076; finance, 17,858,582.

Public debt, December 31, 1910: External, 308,554,074 pesos gold; internal, 92,536,900 gold and 121,534,230 paper; floating, 34,064,123 paper. Paper currency outstanding, 685,150,000 pesos. In June, 1911, a contract was made with a syndicate, composed chiefly of French and Belgian bankers, for a loan of 70,000,000 pesos gold, the proceeds to be applied principally to public works and railways.

ARMY. Service in the army of the Argentine Republic is obligatory under the provisions of the law of September 28, 1905, as modified in 1907. This statute requires personal service of every citizen between the ages of 20 and 45, of which ten years should be spent in the active army or its reserve, with one year of actual service with the colors, ten years in the national guard, and five years in the territorial army. This law is not rigorously enforced, and as a result the actual peace strength is about 15,000 men, though a scheme of mobilization provides for a war strength of about 250,000 men. On a peace footing the active army is divided into five territorial divisions. The forces include ten regiments of infantry, each of two battalions formed of two or three companies, and ten battalions of infantry of three companies each; nine regiments of cavalry, each of four squadrons; five regiments of field artillery of four batteries each; one section of field howitzers of two batteries; two sections of mountain artillery of three batteries; one machine gun battery; one section of heavy artillery; five battalions of engineers; one battalion of railway troops, five companies of train, and a hospital corps. The infantry is armed with the Mauser rifle, the model of '91, and a carbine of the same system and cali-

bre is used by the cavalry. The artillery have Krupp guns, calibre 75 millimeters, rapid-fire howitzers of 115 millimeters calibre, and rapid-fire siege guns of 130 millimeters calibre. According to the budget of 1911, the effective strength of the regular army on a peace basis was three major-generals, twelve brigadier-generals, fifty-two colonels, 130 lieutenant-colonels, 130 majors, 222 captains, 320 first lieutenants, 280 lieutenants, 300 sub-lieutenants, and 20,082 enlisted men. Of the various soldiers making up the war effective strength of 170,000 men, about 128,000 have received preliminary training varying from three months to two years. In addition, the national guard includes an effective strength of 215,000 men, of which about 90,000 have received military instruction; therefore the total war strength of the republic on mobilization would be represented by about 2,600,000 men from 20 to 40 years of age. The territorial troops embrace about 68,000 men.

NAVY. The navy in 1911 included four armored cruisers (aggregating 27,400 tons); two armored coast-guard vessels (4600); one old armored coast-guard (4200); two coast-guards (3070); three protected cruisers (11,440); two torpedo cruisers (1776); two armored river gunboats (2000); three torpedo-boat destroyers (1020); twelve first-class torpedo boats (969); nine second-class torpedo boats (144); 6 transports (29,243); and several auxiliary vessels. The foregoing list does not include any vessels of the new Argentine programme, which provides for two large battleships and twelve destroyers and authorizes, if required, a third large battleship and four additional destroyers. Construction of these latter vessels is contingent on Brazil's naval activity. The two new battleships were launched in 1911, the *Rivadavia* at Quincy, Mass., on August 26, and the *Moreno* at Camden, N. J., on September 23. Both vessels were due for completion in 1912. Of the new torpedo boats, four were launched in Birkenhead, England, in 1911 and completed before the end of the year. Of the others, four were under construction in Germany and four in France. The *Rivadavia* and *Moreno* have each a displacement of 28,000 tons; designed speed, 22½ knots; length between perpendiculars, 575 feet; beam, 95 1-2 feet; draft, 28 feet; battery, twelve 12-inch and twelve 6-inch guns; torpedo tubes, 2; maximum thickness of armor belt, 12 inches; complement, 1050. See **BATTLESHIPS.**

GOVERNMENT. President in 1911, Roque Sáenz Peña (inaugurated for the six-year term, October 12, 1910; vice-president, Victoriano de la Plaza.

HISTORY. Diplomatic relations between Argentina and Bolivia, which had been interrupted as a result of the boundary disputes, were resumed in January, through the good offices of the United States. Much distress was caused early in the year by the failure of the corn crop owing to a prolonged drouth, and many laborers were obliged to leave the country. The scarcity of agricultural labor was intensified by the Italian government's prohibition of emigration to Argentina on account of a quarrel over sanitary regulations. The Argentine government had introduced a number of sanitary reforms as regards immigrants and some of them seemed to bear with especial severity upon Italians. Italy's retaliatory stoppage of emigration caused much indignation in Argentina, where

it greatly reduced the labor supply in the harvest season. An attempt was made to get farm laborers from England. The immigration law of 1911 excluded all but able-bodied immigrants and held the steamship companies responsible for violations. A new loan was announced in June for \$70,000,000 to defray the expenses of the schools, colleges, and federal offices. A mission was sent from Amherst College to make a biological survey in Patagonia, and a German expedition was undertaken to explore the Andes for geological purposes and also to ascertain the possibilities of commercial development. Extensive dams for irrigation were formed by the government. In November it was announced that a British company had bought up fourteen out of the eighteen cigarette factories in the country. General arbitration treaties were signed in July with Ecuador and Venezuela and a similar treaty with Colombia was promised. In December Congress approved the boundary agreement with Bolivia. At the close of the year dissensions arose in the cabinet, causing the resignation of the minister of agriculture.

ARGON. See **CHEMISTRY.**

ARHOVIN. A solution of diphenylamine and thymol benzoate in ethyl benzoate, the three constituents being in molecular proportions. It is a yellowish liquid, having an aromatic odor and a pungent taste; almost insoluble in water but easily soluble in alcohol, ether, chloroform, and fatty oils. On account of its taste it is best administered in capsules. The drug is a urinary antiseptic and is found in this fluid fifteen minutes after ingestion. It is said to be useful in the treatment of urethritis, prostatitis, cystitis, and pyelitis, and externally as a substitute for the silver salts.

ARID LANDS. See **IRRIGATION.**

ARIZONA. **POPULATION.** The total population of the State in 1910 was 204,354 as compared with 122,931 in 1900, an increase of 56.2 per cent. in the decade. The largest towns with their population in 1910 were as follows: Tucson, 13,193; Phoenix, 11,134; Bisbee, 9019; Globe, 7083; Douglas, 6437; and Prescott, 5092.

AGRICULTURE. The Thirteenth Census included statistics of agriculture in the State. They are of date April 15, 1910. On that date the farms numbered 9227, compared with 5809 in 1900. The land in farms was 1,246,613 acres, compared with 1,935,327 acres in 1900, a decrease of 688,714 acres. The improved land in farms was 350,173 acres, compared with 255,521 acres in 1900, an increase of 95,652 acres. The average acres per farm was 135.1 compared with 332.2 in 1900. Farm property including land, buildings, implements and machinery, domestic animals, poultry, and bees were valued at \$75,123,970, as compared with a value in 1900 of \$29,993,847, an increase of \$45,130,123 or 150.5 per cent. in the decade. The average value of property per farm was \$8142 compared with a value in 1900 of \$5163. The average value of land per acre was \$33.97 compared with \$5.90 in 1900, an increase of 475.8 per cent. Of the total number of farms in the State in 1910 8366 were operated by owners and managers and 861 by tenants. The farms free from mortgage numbered 70,388 and those under mortgage 1043. The native white farmers numbered 5218; foreign-born white, 806; negroes and other non-whites, 3203. The non-white farmers included 3159 Indians, 24 Chinese, 12

negroes, and 5 Japanese. The value of the various kinds of domestic animals, and poultry and bees in 1910 was \$26,050,870 as compared with \$15,514,687 in 1900. The cattle numbered 824,970, valued at \$14,824,708; horses and colts, 99,578, valued at \$4,209,726; mules, 3963, valued at \$309,447; swine, 17,268, valued at \$113,714; sheep and lambs, 1,226,733, valued at \$4,400,513. The acreage, production, and value of the principal crops in 1910-11 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	15,000	495,000	\$480,000
1910	15,000	488,000	537,000
Wheat ....1911	27,000	800,000	760,000
1910	27,000	603,000	724,000
Oats .....1911	6,000	252,000	151,000
1910	5,000	200,000	180,000
Potatoes ..1911	1,000	95,000	133,000
1910	1,000	92,000	116,000
Hay .....1911	130,000	502,000	6,024,000
1910	116,000	244,000	3,172,000
a Tons.			

MINERAL PRODUCTION. The total value of the mineral production in 1910 was \$43,483,912. Of this value copper produced almost the entire amount.

The State ranks first in the production of copper, and although there was a decrease in 1910 over the preceding year, this position was maintained. There were produced in 1910 297,481,151 pounds, valued at \$37,781,376, as compared with 303,899,461 pounds, valued at \$39,506,930, in 1909. Of the copper produced 59,425,058 pounds were produced from concentrate year. The Globe-Miami district produced from crude ores sent to the smelters. In 1911 the State again held first rank among the copper producing States, but the output hardly equalled that for 1910, namely, 297,250,000 pounds. The largest producer was the Bisbee district with an output of 133,000,000 pounds, a marked decrease from the output of 1910, 142,500,000 pounds. Part of this decrease was due to the stopping of shipment by the Shattuck-Arizona mine during the latter part of the year. The Gobe-Miami district produced about 40,000,000 pounds as compared with 27,600,000 pounds in 1910. This increase was in the Miami area. In the Jerome district the output of the United Verde mine showed a slight decrease from the 38,660,000 pounds produced in 1910. The State is also a large producer of zinc. The production in 1910 was 5,484,899 pounds, valued at \$296,184 as compared with 5,977,237 pounds, valued at \$322,771, in 1909. The production of lead in the State in 1910 was 2,696,998 pounds, valued at \$118,688, compared with 3,098,083 pounds valued at \$133,218 in 1909. Of the lead produced, 300,268 pounds came from concentrates and 2,393,610 from crude oils sent to the smelters. The total production of gold in the State in 1910 was 152,350 fine ounces, valued at \$3,149,366, an increase in value of \$411,866 over the value of the product of 1909. Of this output 1,257 fine ounces came from placer mines, 95,359 fine ounces from siliceous ores, and 52,707 fine ounces from copper ores. The silver production in 1910 was 2,506,528 fine ounces valued at \$1,385,925 as compared with \$2,607,161 fine ounces valued at \$1,352,604 in 1909. Of the silver output 1,934,363 fine ounces came from

copper ores, 440,120 fine ounces from siliceous ores and 119,034 from lead ores.

According to the estimates of the Director of the Mint the production of gold in the State in 1911 was 142,938 fine ounces, valued at \$2,954,790, a decrease over the production of 1910. The silver mined was 1,594,438 fine ounces, valued at \$876,935. This is a considerable decrease over the production of 1910.

MANUFACTURES. The Thirteenth Census included statistics relating to the manufactures of the State, and its principal results are given in the table below. These figures are for the calendar year 1909. In general, this table brings out the fact that the manufacturing industries of Arizona, as a whole, showed a considerable development in the last five years. The percentage of increase, as will be seen, is 84. Of the persons engaged in manufactures, by far the larger number are found employed in the smelting and refining of copper, which is the leading manufacturing industry of the State. In this are employed 3129 wage earners. No other industry employs any considerable number of men except those engaged in work for railroad companies in general shop construction of cars and repairs. These number 1089. In lumber and timber products 831 men were employed, and in printing and publishing, 268. Other industries of the State are flour mills and grist mills, lumber and timber products, and ice manufacture. Of the total number of persons employed in the various industries, 5.9 per cent. were proprietors and officials, 4.6 per cent. clerks, and 89.4 per cent. wage earners.

The following table gives a summary of the results of the census for the calendar years 1909 and 1904.

	Number or amount 1909	1904
Number of establishments	311	169
Persons engaged in manufactures	7,202	5,217
Proprietors and firm members	261	133
Salaried employees	500	291
Wage earners (average number)	6,441	4,793
Primary horsepower	39,140	21,412
Capital	\$32,873,000	\$14,396,000
Expenses	41,131,000	20,244,000
Services	6,303,000	4,441,000
Salaries	798,000	472,000
Wages	5,505,000	3,969,000
Materials	33,600,000	14,695,000
Miscellaneous	1,228,000	1,208,000
Value of products	50,267,000	28,083,000
Value added by manufacture (value of products less cost of materials)	16,657,000	13,488,000

POLITICS AND GOVERNMENT

The year 1911 marked the practical passing of Arizona from a territorial to a State form of government. While at the end of the year the concluding steps had not actually been taken, it had been assured to such an extent that there was no doubt that Arizona would be promptly admitted among the States. Provisions for the admission of Arizona and New Mexico were made by the second session of the First Congress and approved June 20, 1910. A constitutional convention was held in 1910 which formulated a constitution for the prospective State. This act contained several provisions of a radical

nature. It was, however, on February 7 ratified by the people of the Territory. Previous to this action the document had received sharp criticism from President Taft and others for certain of its features. The provision most severely criticised was that providing for the recall of the judiciary. Among other provisions were those for the initiative and referendum, for amendments to the constitution by a majority vote of the people upon the initiative of 15 per cent. of the voters, for the recall of all elective officers, for direct primaries, for a direct advisory primary for United States Senators, an anti-lobbying clause, a non-partisan election of the judiciary, for a rigid corporation regulation, with a provision designed to abolish "wildcatting," for physical valuation of railroads as a basis for rate regulation, for a corporation commission with wide powers and for an employers' liability provision for abrogating the fellow servant doctrine, and the elimination of probate courts. The proposed constitution was ratified by a vote of about 12,000 to 3500. At the first session of the Sixty-second Congress a joint resolution was passed providing for the admission of Arizona and tacitly admitting the right of its people to formulate as radical a constitution as they wished. This joint resolution was vetoed by President Taft on account of his disapproval of the provision concerning the recall of judges contained in the Arizona constitution. He declared that the recall, as applied to county and State judges, can be destructive of independence in its judiciary, likely to subject the rights of the individual to the possible tyranny of the popular majority, and therefore injurious to the cause of free government. The government is for all the people and not solely for a majority of them; the majority in exercising control . . . is bound to exercise the power for the benefit of the minority as well as for the majority. But all have recognized that the majority of a people unrestrained by law, when aroused and without the sobering effect of deliberation and discussion, may do injustice to the minority or to the individual when the selfish interest of the majority prompts. Hence arises the necessity for a constitution by which the will of the majority shall be permitted to guide the course of the government only under controlling checks that experience has shown to be necessary to secure for the minority its share of the benefit to the whole people that a popular government is established to bestow . . . No honest, clear-headed man, however great a lover of popular government, can deny that the unbridled expression of the majority of a community converted hastily into law or action would sometimes make a government tyrannical and cruel. Constitutions are checks upon the hasty action of the majority. . . . In a proper sense, judges are servants of the people; that is, they are doing work which must be done for the government and in the interests of all the people. But it is not work in the doing of which they are to follow the will of the majority, except as that is embodied in statutes lawfully enacted according to constitutional limitations. The President admitted that some judges have rendered not only unpopular but unjust decisions, and that others have showed themselves to be under corrupt influences. But he insisted that a system of legalized terrorism should not be substituted for individual injustices. He de-

clared further that self-respecting men would hesitate to accept office with such a sword of Damocles hanging over them. The proper remedy for dishonest and corrupt judges, he declared, would be found in a more effective system of impeachment in which the opportunity for judicial hearing and defense before a tribunal might be retained.

Following the President's veto another joint resolution was introduced and passed. This provided for the admission of Arizona upon an equal footing with the original States upon condition that the provision for the recall should be eliminated from the constitution. It was, therefore, incumbent upon the voters in the Territory to consent to an amendment to the constitution eliminating the judicial recall provision. This election was held on December 12, 1911, and included the election of a full State ticket and a member of Congress. An advisory vote was also taken for two United States Senators. Members of the legislature are obliged to elect these candidates at the first session of the State legislature to be held in 1911. The two candidates receiving the largest number of votes and therefore the first Senators from Arizona were Marcus Smith, who served the Territory during eight terms as delegate to Congress, and Henry Ashurst. The vote to eliminate the objectionable amendment to the constitution was practically unanimous.

Previous to this election the first primary for the nomination of State officers had been held on October 24. The candidates for nomination for governor were G. W. P. Hunt and Thomas F. Weedon, Democrats, and E. W. Wells and George W. Young, Republicans. At the election on December 12, the Democrats elected the entire State ticket and a majority of the legislature.

Following its admission as a State, the legislature has the power to reincorporate in its constitution the feature objected to by President Taft; and as it is conceded that a majority of the members of the legislature are in favor of the provision for the recall of judges, it was assumed that the measure would be restored to the constitution at the first opportunity.

OTHER EVENTS. On March 18 the great Roosevelt storage dam was officially opened by Theodore Roosevelt. This is one of the highest dams ever built, being upward of 283 feet, 8 inches. It is 168 feet thick at the base, and 20 feet at the crest, which extends 1080 feet. It is part of the reclamation work being carried on by the government in arid regions. It is situated in what has been one of the desert regions of the world. The water which it imprisons flows into Salt River, which, for the greater portion of the year, contains little water. In the spring, however, when the snow on the mountain ranges has melted, this stream has become a great torrent. The Roosevelt dam imprisons this overplus of water and transforms it into a great lake, the largest artificial lake, it is said, in the world. It is estimated that the water from the mountains and from the subterranean supply which is available will reclaim considerably more than 200,000 acres of land. The work was begun under the administration of President Roosevelt and he made an address at the opening of the dam.

TERRITORIAL GOVERNMENT IN 1911. Officers prior to December 12, 1911: Governor,

Richard E. Sloan; Secretary, George U. Young; Treasurer, E. E. Kirkland; Auditor, W. C. Foster; Adjutant-General, L. W. Coggins; Attorney-General, John B. Wright; Superintendent of Education, Kirke T. Moor; Commissioner of Insurance, George U. Young—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Edward Kent; Associate Justices, L. W. Lewis, Fletcher M. Doan, John H. Campbell, Edward M. Doe; Clerk, F. A. Tritle, Jr.—all Republicans.

ARKANSAS. POPULATION. The total population of the State in 1910, according to the Thirteenth Census, was 1,574,449, as compared with 1,311,564 in 1900. The principal cities with their populations in 1910 and 1900 are as follows (the figures in parentheses are for 1910): Little Rock, 95,941 (38,307); Ft. Smith, 23,975 (11,587); Pine Bluff, 15,102 (11,496); Hot Springs, 14,434 (9793); Aregenta, 11,138.

AGRICULTURE. The acreage, production, and value of the leading crops in 1910 and 1911 are as follows:

	Acreage	Prod., bu.	Value
Corn .....1911	2,390,000	49,712,000	\$35,793,000
.....1910	2,390,000	57,360,000	33,269,000
Wheat .....1911	96,000	1,008,000	907,000
.....1910	87,000	1,209,000	1,136,000
Oats .....1911	205,000	4,100,000	2,173,000
.....1910	207,000	5,692,000	2,618,000
Rye .....1911	1,000	10,000	9,000
.....1910	1,000	12,000	12,000
Rice .....1911	71,600	2,792,000	2,289,000
.....1910	60,000	2,400,000	1,680,000
Potatoes ..1911	26,000	1,430,000	1,644,000
.....1910	30,000	2,620,000	2,142,000
Hay .....1911	200,000	a 230,000	2,990,000
.....1910	210,000	284,000	3,124,000
Tobacco ..1911	800	b 480,000	67,000
.....1910	800	520,000	83,200
Cotton ...1911		c 915,000	

a Tons. b Pounds. c Bales.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1910 was \$5,350,705. In addition to coal, which was the most important product, clay products were valued at \$578,455; lead, \$127,068; stone, \$382,611.

The production of coal in the State in 1910 was 1,905,958 short tons, with a value of \$2,979,213, a decrease of nearly one-fifth from the tonnage of 1909. The coal-mining industry of the State was practically at a standstill for six months during the year. The strike which began on April 1, and lasted until September 15, affected nearly all of the coal-mining employees in the State. There were 5568 men employed in the coal mines in 1910 and there were 4873 men on strike.

EDUCATION. The enrollment in the schools of the State for the year ending June 30, 1911, was 404,760. The average daily attendance was 255,405. The number of teachers employed was 9834. The total value of school property was \$7,872,856. There were erected during the year 302 new school buildings. The total expenditure for the year for education was \$3,610,132. Many important measures relating to education were passed at the legislative session of 1911. Among these was one providing for a State board of education. As a result of measures passed in recent years, compulsory school attendance is now effective in forty counties.

CHARITIES AND CORRECTIONS. The charitable

and correctional institutions of the State with their populations in 1911 are as follows: State Hospital for Nervous Diseases, Little Rock, 1120; Deaf Mute Institute, Little Rock, 243; School for the Blind, Little Rock, 113; Confederate Soldiers' Home, Sweet Home, 74; Arkansas State Penitentiary and State Farm, 840; Arkansas Reform School, Little Rock, 53. The State charitable institutions are controlled by the Board of Trustees of Charitable Institutions and the correctional institutions by the State Penitentiary Commissioners.

POLITICS AND GOVERNMENT

The State legislature was in session twice during 1911. A regular session and a special session were held. See paragraph *Legislation* below. There were no elections in the State during the year. On January 24 the lower house of the legislature ratified the proposed income tax amendment. On March 7 this resolution was defeated by the senate, but on April 17 that body reversed itself and voted for its ratification. A proposed amendment to the State constitution for the so-called "grandfather clause," which follows in general similar clauses in the constitutions of some other Southern States, will be voted on by the people at the September, 1912, election. There will also be submitted to a vote of the people a proposed amendment to the constitution exempting from taxation for seven years capital invested in cotton manufactories.

A bill providing for a revision of the revenue system of the State will be submitted to the people at the September, 1912, election under the referendum, the initiative and referendum having been put into the Arkansas constitution by the amendment adopted in September, 1910. Plans are being made for submission to the people at the September election through the initiative of a bill providing for statewide prohibition. The Democratic primary will be held on March 27. Governor George W. Donaghey is a candidate for nomination for a third term and he is opposed by Congressman Joe T. Robinson. Senator Jeff Davis is a candidate for nomination for a second term. He is opposed by former Congressman S. Brundidge.

LEGISLATION. A regular and a special session of the legislature were held in 1911. At the special session an act was passed carrying into effect a constitutional amendment providing for the initiative and referendum. At the regular session no laws of unusual importance were passed, excepting a measure providing for a juvenile court and one creating a State board of education. A measure was passed making railroad companies liable to anybody suffering injury by death to an employee.

STATE OFFICERS. Governor, George W. Donaghey; Lieutenant-Governor, W. J. Rodgers; Secretary of State, Earle W. Hodges; Treasurer, John W. Crockett; Auditor and Insurance Commissioner, J. R. Jobe; Attorney-General, Hal L. Norwood; Superintendent of Education, George B. Cook; Commissioner of Agriculture, Clay Sloan; Commissioner of Public Lands, R. G. Dye—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Edgar A. McCulloch; Justices, Samuel Frauenthal, C. D. Wood, William F. Kirby, and Jesse C. Hart; Clerk of the Court, P. D. English—all Democrats.

STATE LEGISLATURE, 1911. Democrats: Senate 34; House, 95; joint ballot, 129. Republi-

cans: Senate, 1; House, 5; joint ballot, 6. Democratic majority: Senate, 33; House, 99; joint ballot, 123.

The representatives in Congress will be found in the article UNITED STATES, section Congress.

ARKANSAS (BATTLESHIP). See BATTLESHIPS.

ARKANSAS, UNIVERSITY OF. An institution of higher learning, founded in 1871, at Fayetteville, Ark. It is supported by the State. The number of students enrolled in the various departments of the university in 1910-11 was 1540. The faculty numbered 155. There were no notable changes in the faculty during the year. The income of the university is derived almost entirely from the State. It amounts to about \$140,000 per year. The library contains about 15,000 volumes. The president is John M. Tillman, LL. D.

ARMAMENT, BATTLESHIP. See BATTLESHIPS.

ARMIES. See MILITARY PROGRESS, and articles on countries.

ARMOR. See BATTLESHIPS, and MILITARY PROGRESS.

ARMY MANŒUVRES. See MILITARY PROGRESS.

ART. See PAINTING, SCULPTURE, ARCHITECTURE, and MUSIC.

ARTIFICIAL GEMS. See CHEMISTRY, INDUSTRIAL.

ARTILLERY. See MILITARY PROGRESS.

ASBESTOS. The asbestos industry in the United States has steadily increased in recent years. The total production for 1910 was 3693 tons, valued at \$68,357, an increase of 20 per cent. in quantity and 9 per cent. in value over the production of 1909. There are four States producing asbestos, Georgia, Idaho, Vermont, and Wyoming. Georgia and Idaho produce the amphibole variety and Vermont and Wyoming the chrysotile.

Canada is the most important source of the raw asbestos used in the United States. Canadian exports for the calendar year 1910 were 71,485 short tons, valued at \$2,108,632, and of this by far the greater part was exported to the United States. The total quantity of all the asbestos unmanufactured imported into the United States in the calendar year 1910 was 52,888 long tons, valued at \$1,285,171. In addition to Canada, small amounts were imported from Germany, Italy, Russia, and the United Kingdom.

Increased demand for asbestos fabrics, insulating tapes, and more especially for friction facing in automobile brakes, and for steam packings of all descriptions, has been remarkable in recent years. The higher grades are also used for leggings and shoe coverings among workers of molten metal. In Europe the mineral is used for manufacturing tapestry, but in the United States the high grades are used chiefly for steam packing, for which it is largely replacing rubber. The use of low grades for making shingles, slates, and boards or lumber for building purposes, has greatly increased within a few years.

ASHOKAN DAM AND RESERVOIR. See AQUEDUCTS.

ASIA. See ANTHROPOLOGY; EXPLORATIONS, and articles on countries.

ASIA MINOR, EXCAVATIONS IN. See ARCHAEOLOGY.

ASHMORE, SIDNEY GILLESPIE. An American educator and scholar, died May 22, 1911. He was born in London in 1852. When he was

six years of age his family removed to New York City. He studied under private tutors and in 1872 graduated from Columbia College. He was appointed instructor in Greek and Latin at Lehigh University in 1873. Here he remained until 1876 when he became instructor of Latin in Columbia College. In 1881 he was appointed professor of Latin at Union College. His published works include a widely used edition of the plays of Terrence, and editions of Cæsar's *Helvetian War*, and *Invasion of Britain*. He also wrote *The Classics and Modern Training* (1905) and contributed various articles on literary and educational subjects to periodicals. He was a member of many educational associations and learned societies.

ASQUITH, H. H. See GREAT BRITAIN.

ASSOCIATION OF AMERICAN UNIVERSITIES. A body organized in 1900 for the purpose of considering matters of common interest in relation to graduate study in American institutions. Its membership consists of the following universities: University of California, Catholic University of America, University of Chicago, Clark University, Columbia University, Cornell University, Harvard University, Indiana University, University of Illinois, State University of Iowa, Johns Hopkins University, University of Kansas, Leland Stanford Jr. University, University of Michigan, University of Minnesota, University of Missouri, University of Nebraska, University of Pennsylvania, Princeton University, University of Virginia, University of Wisconsin, and Yale University. The twelfth annual conference of the association was held at the University of Chicago October 26 and 27. In 1908 the association adopted the general conditions under which universities are to be admitted to membership. These included the presence in the institution of a strong graduate school; and, in those institutions which have professional schools in addition to the graduate department, the requirement in at least one such school of one or more years of college work as a prerequisite for admission to professional courses, the combination to be so arranged that no professional degree shall be given until the satisfactory completion of at least five years of study. This action defined for the first time what an American university should be from the standpoint of the most important of them and it places all professional study in America in such institutions ultimately upon a graduate basis, in that it proposes in due time to require that all professional work shall be preceded by college work in the manner indicated. The association publishes each year the proceedings of the annual conference. The officers for 1911-12 are: President, Leland Stanford Jr. University; vice-president, Clark University; secretary, Harvard University; additional members of the executive committee, Columbia University and the University of Indiana. The thirteenth annual conference in 1912 is to be held at the University of Pennsylvania, Philadelphia.

ASSUAN DAM. See IRRIGATION, and DRAINAGE.

ASSUR, EXCAVATIONS IN. See ARCHAEOLOGY.

ASTEROIDS. See ASTRONOMY.

ASTRONOMY. The work of the year 1911 showed steady progress in all branches of astronomical research. No striking discoveries marked the year, though, of the five new comets discovered, three became visible to the naked eye. The discovery of three *novæ* or new stars

was announced; two of these—in the constellation *Sagittarius*—were in a region of the heavens in which no less than seven of these bodies have blazed forth at different times. Elaborate preparations were made for observing the last of the present series of long duration total eclipses of the sun, but with disappointing results. Important advances in our knowledge of the sun were reported from the Mount Wilson Solar Observatory. The opposition of Mars at the end of November gave observers of that planet a favorable opportunity for further study, and many interesting observations of the changes in the topography of its surface were recorded.

THE SUN. From an examination of between 3000 and 4000 prominences recorded on photographs taken at the Yerkes Observatory during the period 1904-1910, Dr. F. E. Slocum made important deductions concerning the circulatory currents in the solar chromosphere. The light of the H calcium line was always used. About one-third of the prominences examined were found to indicate a horizontal current at an average height of 30,000 kilometers. There was a tendency for movement towards the poles in middle latitudes and in high latitudes a tendency for movement towards the equator which was more pronounced in the northern hemisphere than in the southern, while near the equator conditions were almost neutral. It was suggested that the results obtained probably applied to an upper current analogous to the terrestrial anti-trades. Messrs. Abbot and Fowle, using a standard pyrheliometer of new design, announced that their series of measurements of the solar radiation at Mount Wilson during the period 1905-9 gave as the value of the solar radiation constant 1.922 calories (15°C.) per sq. cm. per minute, a result which is probably accurate within one per cent.

Mr. A. Cotton, writing in the *Astrophysical Journal*, questioned the legitimacy of applying Doppler's principle without consideration of other facts to the determination of the radial velocity of the sun's parts from the measured displacements of the lines of the solar spectrum.

ECLIPSE OF THE SUN. A total eclipse of the sun took place on April 28. It was visible as a partial eclipse in all parts of the United States south of a line drawn through Philadelphia, Milwaukee, and Portland, Ore. The path of totality extended from the southeast coast of Australia in a northeasterly direction across the Pacific Ocean. As it was the last of the series of long duration eclipses for some years to come, it was deemed sufficiently important to warrant a special attempt to secure observations, both spectroscopic and topographic, and several expeditions were fitted out for this purpose. Three English expeditions were dispatched to Vavau, a small coral island of the Friendly Group in lat. $18^{\circ}39'$ S. and long. $173^{\circ}59'$ W., where the duration of totality was 217 seconds. Besides these, an expedition headed by Dr. L. A. Bauer, the director of the Department of Terrestrial Magnetism of the Carnegie Institution, proceeded to Tau Island, one of the Manua Group of the Samoan Islands; and there were also Australian and German expeditions. On the whole, the results were disappointing, as most of the parties experienced unfavorable weather conditions and were consequently able to secure comparatively few negatives. The corona was reported as of the typical minimum sun-spot type.

The American expedition, which was intended primarily for the purpose of making magnetic observations, was more successful, the astronomical observations being made by the officers of the United States cruiser *Annapolis*, which conveyed the party. Several negatives were obtained showing the inner corona and numerous extensions, some of them extending to a distance of more than half the sun's apparent diameter. The Australian expedition to the island of Lifuka was also favored with excellent conditions for observation and reported that the hydrogen prominences were wonderfully distinct. It has been seriously questioned whether the gain in our knowledge of the sun is worth the expenditure of time and money involved in fitting out so many expeditions of this nature.

MOUNT WILSON SOLAR OBSERVATORY. In his annual report to the Carnegie Institution of the work accomplished at this observatory during 1910, Professor W. S. Adams, the acting director, gave a summary of the principal results obtained by himself and other members of the staff. Among the more important of these results may be mentioned the following: It has become possible to classify the sun-spots according to the properties of their magnetic fields. It was found from photographs taken with the hydrogen α line that the first sign of activity was given by the appearance of bright flocculi in the spot region. With the development of the spot the surrounding disturbance became more marked and was usually followed by the appearance of a vortex structure. The two larger spots lying at the opposite ends of a group were almost invariably found to be of opposite polarity, and in consequence it has been found possible to identify the following classes of H α flocculi, (1) unipolar, (2) bipolar, (3) multipolar, (4) filaments (very dark, long, and narrow), and (5) eruptions (very bright, rapidly changing in form). In the bipolar type the bright flocculi are usually first seen between the spots and resemble in form the lines of force joining the poles of a bar magnet; in the other cases they are closely massed about the spot or group. It is considered that the two principal spots of a bipolar group are the opposite extremities of a single vortex tube. Photographs taken with the hydrogen δ line and the calcium H₁ line showed few instances of the unipolar type and none of the multipolar.

Professor C. E. St. John found, from an extensive investigation of the circulation of the calcium vapor in the solar atmosphere, that the vapor producing the absorption K₂ had a descending motion of about 1.1 km. per second over those portions of the sun's disc which were free from spots and faculae, while the vapor producing the bright line K₁ had an ascending motion of 2 km. per second, both motions being essentially radial. It was suggested that a possible cause of the high radiating power of the emitting layer is to be found in its increased temperature resulting from the transformation into heat of the mechanical energy which is liberated by the loss of velocity in the opposing upward and downward currents. A later communication, published in the *Astrophysical Journal*, extended the inquiry over the regions of spot umbrae and penumbrae and flocculi, and it was found that the emitting vapor in most sun-spots was descending at from .6 to 2.2 km. per second, while in the penumbra it was apparently in a state of vertical equilibrium.

A number of photographs of nebulae and star-clusters were obtained by Mr. Ritchey, who found that the globular star-clusters are composed of scores of thousands of stars, and that their angular diameters are at least three times as great as they appear in the large refracting telescopes. It was estimated there are upwards of 27,000 stars in the *Hercules* cluster alone. The spiral nebulae examined were found to contain great numbers of star-like condensations which may be stars in the process of formation. In general, these condensations lie in streams which follow the spirals of the nebulous matter in which they appear.

Work with the 18-foot spectrograph on the spectra of *Sirius*, *Procyon*, and *Arcturus* gave material for important deductions regarding the physical condition of these stars. Measurements of the photographs indicated that the enhanced lines in the spectra of *Sirius* and *Procyon* were displaced toward the red relative to the arc lines, and the pressure in the reversing layer of *Sirius* was estimated to be 12 atmospheres greater than in the sun's reversing layer, and in *Procyon* 7 atmospheres greater. In the case of *Arcturus* the elements behave spectroscopically in almost the same way as at the sun's limb, so that it is probable that *Arcturus* has a comparatively shallow reversing layer and that within this layer the general arrangement of the gases is similar to that in the sun.

SUN SPOTS. The minimum of the present period of sun-spot activity is approaching, and no noteworthy development of spots was recorded during the year.

From an investigation of the proper motion in longitude in sun-spot groups, Dr. Brunner of Zurich found that, during the early stages of the development of a group, there is a decided tendency for the spots composing the group to separate one from another. He also found that at the maximum epoch of the eleven-year period the motion of the following spots of a group is usually in excess of that of the preceding spots, so that, as a whole, there results a backward displacement of the group upon the sun's disc, but the amount of the displacement is independent of both the phase of the solar activity and the heliographic altitude of the spots.

Schuster has attempted to connect the formation of sun-spots with planetary action, and to that end investigated the relations between the heliocentric longitudes of Mercury, Venus, and Jupiter and the points of the sun's disc at which the sun-spots were started. Some indications of a connection were found. There was a strong minimum of sun-spot formation about an hour before planet-rise on the sun, increasing to a decided maximum about two hours later. This was succeeded by a secondary minimum an hour after planetary noon, rising again to a pronounced maximum a couple of hours later. Other observers have questioned the validity of Schuster's conclusions, and it is evident that further observations extending over a prolonged period will have to be made before the nature of the interdependence, if it exists, can be made out.

JUPITER. Observations on the Red Spot of Jupiter showed a remarkable change in longitude amounting to nearly eight degrees. The spot was also more distinctly visible than it had been for several years previous, and its red color was very strongly marked. The ro-

tation period of the spot was found to be 9 hours, 55 minutes, 36.5 seconds, much less than anything recorded in recent years.

During the year several observations of the fainter satellites of the planet, particularly of the eighth and most distant, which was discovered by Melotte in 1908, were recorded.

NEW STARS. *Nova Lacertæ*, the discovery of which by the Rev. T. C. Espin, of Walsingham, England, on December 30, 1910, was reported in the YEAR BOOK for 1910, engaged the attention of many observers during 1911. It was found to have been recorded on plates taken at Harvard Observatory fully a month before it was seen by Mr. Espin, its magnitude being then about 5. When first seen, it was a star of the seventh magnitude, and red in color. Its brightness steadily decreased, its magnitude in August being only 10.5; in March its color changed to bluish-white. Examination of plates taken by Wolf and Barnard of the region of the heavens in which the nova appeared showed that as far back as 1893, a faint star of the fourteenth magnitude occupied the same position, and it seems reasonably certain that this star took part in the catastrophe which produced the nova.

Miss Cannon, examining the Harvard plates, discovered the two stars in the constellation *Sagittarius*, which have been designated *Nova Sagittarii* No. 3 and *Nova Sagittarii* No. 4. The first of these stars appeared on August 10, 1899, its magnitude being 8.5, declining in the course of a few months to 10.5. After October, 1901, when its magnitude was about 13, it could not be found. *Nova Sagittarii* No. 4 was discovered on plates taken between May 22 and July 9, 1901. The date of its appearance could not be determined with accuracy, but it was at its brightest on May 22, its magnitude being 10.3. After some fluctuations in brilliancy, it disappeared. It is worthy of note that the region of the heavens in which these two stars appeared has been the seat of the birth of no less than seven novae.

The discovery of a nova in *Pisces* was announced by Herr E. Ernst of Heidelberg.

ABSORBING MATTER IN SPACE. The question of the presence of absorbing matter in interstellar space was discussed by Mr. Innes of the Transvaal Observatory. Certain regions of the sky are apparently black, no stars of any magnitude being visible. Innes suggested that this may be due to the presence of irregular masses of gas, some dark and opaque, others slightly luminous at the edges. The movement of these masses would be sufficient to explain the disappearance and reappearance of certain stars.

Mr. Slipher of the Lowell Observatory at Flagstaff, Ariz., found that certain stars giving the Orion type of spectrum exhibited marked peculiarities in the intensity of the K calcium line. Thus, for several stars of the constellation *Scorpius*, it was found that the spectrum showed a sharp K line while the lines of other elements were broad and diffuse. This calcium absorption is apparently independent of the star, and it was suggested that the absorbing medium in which this takes place consists of matter lying between us and the stars.

COMETS. The periodic comets due to return in 1911 were Brooks's (1889 V), Westphal's (1852 IV), Barnard's (1892 V), Wolf's (1884 III), Encke's (first observed in 1785), and Borrelly's (1905 II). The last three were re-

ported, and were designated 1911a, 1911d and 1911e respectively.

Wolf's comet (1884 III, 1911a) was the first of the comets of the year to be announced. Its period is about 6.8 years, and it returned in 1891 and 1898, but escaped notice at its last return in 1904. It was detected by Professor Max Wolf, its original discoverer, at the Königstuhl Observatory (Heidelberg) on June 20 on a plate taken for that purpose. When discovered, it had a stellar nucleus of magnitude 15, eccentrically placed in a faint globular nebulosity. Only four observations were secured, and it was calculated that at no time during this return would its brightness exceed the fourteenth magnitude. The comet will pass through perihelion on February 11, 1912.

Encke's Comet (1911d). Owing to its faintness and its unfavorable position relative to the sun, it was hardly expected that this famous comet would be discovered at this apparition. It is noteworthy as the first short-period comet to have its periodicity recognized. Since 1819, when this fact was established, the comet has been observed at every reappearance. Another remarkable thing about the comet is the very slow and persistent acceleration which its periodicity is undergoing, a fact which has been held to prove the existence of the luminiferous ether. According to some observers, its brightness varies with the sun-spot activity through the eleven-year period. When first detected by M. Gonnensiat at Algiers on July 31, it was of about the tenth magnitude. It passed through perihelion on August 19.

Borrelly's Comet (1905 II, 1911e), with a period of about 7 years, was rediscovered by Mr. Knox Shaw at the Helwan Observatory, Egypt, on September 19. When first seen, it possessed no distinct nucleus and no tail, and was a body of the thirteenth magnitude. On October 10 it was still very indistinct, but its brightness showed a marked increase, and by the end of November it was of the ninth magnitude and had developed a nucleus and a short tail. Its perihelion passage took place on December 18.

Brooks's comet (1889 V) was due at perihelion on January 8. It was nearest the earth on August 9, 1910, but was not detected.

Barnard's Comet (1892 V) has a period of about 6.37 years, and on this assumption M. Coniel published a search ephemeris, but the year passed without its discovery.

Westphal's Comet (1852 IV). The period of this comet, which passed through perihelion on October 12, 1852, is between sixty and sixty-two years. Three search ephemerides based on periods lying between these limits were published by Herr A. Hnatek, but the rediscovery of the comet was indicated as doubtful owing to the smallness of the calculated magnitudes, which varied from 10.3 to 13.4.

Five new comets were discovered. These were: 1911b, discovered by Kiess at the Lick Observatory on July 9. It passed through perihelion on June 30. It was approaching the earth and in August came within 18,500,000 miles. When first seen, its magnitude was about 8, and it presented the appearance of a globular condensation surrounded by a nebulosity which extended toward the south-southwest; there was, however, no distinct nucleus. It increased rapidly in brightness, developing appendages on both the preceding and follow-

ing sides, and on July 25, when it was of the sixth magnitude, a long streamer extended for some distance in a direction at right angles to the axis and the comet presented a striking appearance in the early morning sky, especially to observers in the southern hemisphere. Many changes in the character and position of its tail were noted. Professor Wolf reported its head as showing a distinct dark space behind its centre and a cone of matter streaming out in front of the coma. About the middle of August it attained its maximum brightness—magnitude 5—and from that time on it decreased rapidly in brilliance, being of magnitude 11.5 only on September 17. It was suggested that this comet was identical with comet 1790 I, but no confirmation of this identification was reported.

1911e, discovered by Brooks at Geneva, N. Y., on July 20. It was then of the tenth magnitude, presenting the appearance of a faint condensation of about half a minute in diameter surrounded by an irregular mass four minutes in diameter. As it was approaching the earth its brightness increased rapidly, and about the beginning of September it became a conspicuous naked-eye object. It was nearest the earth on September 17, being then distant about forty-eight million miles. When it passed through perihelion on October 27 it was of about the third magnitude and, with a tail about twelve degrees in length, presented a brilliant appearance in the morning sky. From this time on, it receded rapidly from both the earth and the sun, its brightness decreased, and passing to the southern hemisphere, the comet became lost to northern observers.

1911f, discovered by M. Quénnisset at Juvisy on September 23, was of about magnitude 7.5, and round in form with a distinct nucleus. Its spectrum was of the hydrocarbon cyanogen type. Its perihelion passage took place on November 12.

1911g, discovered by Beljowsky at the Simeis Observatory on September 28, was a brilliant third-magnitude object with a curved and fan-shaped tail about two or three degrees long. Perihelion passage occurred on October 14.

1911h, discovered by Schaumasse at Nice on November 30 was an object of the twelfth magnitude. It is expected to attain its greatest brilliance about the end of January, 1912, when it should be of the tenth magnitude. It will pass through perihelion on February 5, 1912.

MINOR PLANETS. The number of minor planets announced as new during 1911 was fifty-eight. While this number is slightly in excess of the number reported during 1910, it still falls far short of the totals discovered in each of the preceding four years. Besides, no less than twelve of the finds reported turned out to be identical with previously known asteroids, so that it seems fairly certain that the extraordinary activity in the photographic exploration of the heavens which has characterized the past decade has done much to exhaust the number of minor planets discoverable in that way.

The discoveries of the year were provisionally designated by the letters LE to NN with the omission of MF and NK and the inclusion of LZa. The lion's share, as usual, was announced from the Königstuhl Observatory at Heidelberg by Professor Max Wolf (5) and his assistants Kaiser (17), Helffrich (11), and Massinger (1). Of the remaining twenty-four, ten are to be

credited to Palisa (Vienna), seven to Wood (Johannesburg), four to Metcalf (Winchester, Mass.), two to Beljawsky (Simeis), and one to Lowell (Flagstaff). One of those—LX—credited to Wood was announced by Wolf on May 22, but was afterwards found to be identical with one of a pair first observed by Wood on April 22. It is worthy of note that the discoveries announced by Wood at the Transvaal Observatory at Johannesburg are the first to be made at an observatory south of the equator.

Twelve of the above minor planets were found to be identical with bodies previously known, so that the number of new asteroids not certainly identified with the discoveries of former years was forty-six.

Permanent numbers, ranging from 692 to 714 were assigned to the following minor planets:

1901 HD (=692);
1909 HN (=693), JA (=694, *Ekard*), JB (=695);
1910 JJ (=696, *Leonora*), JO (=1910 JV), JX, KD, KE, KN, KQ, KT (=703, *Noemi*), KU (=704, *Interamnia*), KV, KX, LD, LJ, LK, LM, LN, LO, LS, LW (=714).

In addition to the planets in the foregoing list which have been named, one other received a name in 1911, viz. (689) 1009 HJ = *Zita*.

1911 MT, discovered by Palisa on September 29, proved to be an interesting discovery, inasmuch as it was found to have a rapidly increasing right ascension at opposition, and was therefore in all probability an asteroid of the Eros type. Unfortunately, poor conditions for observation intervened before sufficient data for the determination of its orbit had been secured, and later the planet was found to have disappeared. The few observations obtained were found to fit in well with the hypothesis of a body having about the same perihelion distance as *Eros* and an orbit of somewhat greater eccentricity than the orbit of that remarkable planet.

REFORM OF THE CALENDAR. During the past few years numerous proposals for the reform of the calendar have been put forward. None of them aims at disturbing the present agreement between the calendar and the seasons, which was partly secured by Julius Cæsar and later, in 1582, improved by Pope Gregory XIII., but rather at bringing about a correspondence between the days of the week and those of the year, so that any given day during the year shall always fall on the same day of the week. As the ordinary year breaks up into fifty-two weeks and one day, all of the plans suggested agree in making the odd day a *dies non*, and in giving it a special name; one reformer wishes to call it Zero Day and the extra day of leap year Double Zero, while another would give these two days the names New Year Day and Leap Day, respectively. Each week would begin with Monday. The greatest diversity of opinion arises when it comes to the division of the year into months. One group of reformers demands thirteen months of twenty-eight days each, but here again they differ among themselves as to the best position for the extra month. To place it at the end of the year and call it Treceber, as suggested by a Chilean, would make the interval between Christmas and New Year too long; hence Slocum would put the extra month in the middle of the year and call it Sol, while Patterson considers Roma a more appropriate name. On the other side stands Professor T. C.

Chamberlin, who proposes to divide the year into four quarters, each consisting of three equal months of twenty-eight days each, named as at present, with an extra week at the end of each quarter. To these extra weeks—the 13th, 26th, 39th, and 52d—he proposes to give the names Easter, Julian, Gregorian, and Christmas week, respectively, and suggests that they might be used for the holding of fairs and festivals, and for the general cleaning-up of the business of the preceding quarter. It has also been suggested that Easter should be made a fixed date and in that way we should get rid of the only remaining vestige of the lunar origin of our calendar.

STANDARD TIME. The anomalous stand of France against the adoption of standard or universal time has at last been abandoned. The French formerly set their clocks by Paris, which was nine minutes and twenty-one seconds fast on Greenwich, and consequently failed to fit in with the scheme of standard time adopted by nearly all civilized countries. At midnight on March 10, 1911, all the clocks in France and her North African possessions were set back by the amount necessary to bring them into agreement with Western European or Greenwich time. Of the countries of Europe, only Ireland, Russia, and Portugal remain aloof from the system, but Portugal announced her intention of adopting standard time for herself and her colonies on January 1, 1912.

The subjoined table gives the central meridian for the countries in the left hand column, and the amount by which the clock is fast or slow on Greenwich. Portugal and the Portuguese colonies are given in italics.

Country	Central Meridian	Fast or slow
Great Britain, France, Belgium, Holland, Spain, <i>Portugal, São Thomé and Príncipe Islands, Whydah</i>		0h.
Sweden, Denmark, Germany, Austria-Hungary, Switzerland, Italy, <i>Servia, Portuguese West Africa</i>	15° E.	1h. fast
Rumania, Bulgaria, Turkey, Egypt, British South Africa, <i>Portuguese East Africa</i>	30° E.	2h. fast
Mauritius, Seychelles...	60° E.	4h. fast
Chagos Archipelago....	75° E.	5h. fast
India (Bombay, Madras), <i>Portuguese India</i>	82½° E.	5½h. fast
India (Calcutta).....	90° E.	6h. fast
Burma	97½° E.	6½h. fast
Straits Settlements.....	105° E.	7h. fast
Hongkong, eastern China, Borneo, Philippines, Western Australia, <i>Macao, Portuguese Timor</i>	120° E.	8h. fast
Japan, Korea	135° E.	9h. fast
South Australia	142½° E.	9½h. fast
Victoria, New South Wales, Queensland, Tasmania	150° E.	10h. fast
New Zealand	167½° E.	11½h. fast

Country	C. M.	F. or S.
Iceland, <i>Madeira, Portuguese Guinea</i>	150°W.	1h. slow
<i>Azores, Cape Verde Islands</i>	130°W.	2h. fast
United States and Canada:		
Intercolonial	60°W.	5h. slow
Eastern	75°W.	5h. slow
Central	90°W.	6h. slow
Mountain	105°W.	7h. slow
Pacific	120°W.	8h. slow

BOOKS. Among the more important works published in 1911 are: Darwin, *Periodic Orbits and Miscellaneous Papers*; Norton, *A Star Atlas and Telescopic Handbook* (Epoch 1920); Abbot, *The Sun*; Stroobant, *Les Progrès Récents de l'Astronomie* (III—année 1909); Newcomb-Engelmann, *Populäre Astronomie*, fourth edition.

ASTROPHYSICS. See ASTRONOMY.

ATHENS, EXCAVATIONS IN. See ARCHAEOLOGY.

ATHLETICS, TRACK AND FIELD. The athletes who stood out most prominently in 1911 were J. P. Jones of Cornell University, R. C. Craig of the University of Michigan and M. J. McGrath and Martin J. Sheridan of the Irish-American A. C. of New York City. Jones established a new amateur record for the mile run, covering the distance in 4 minutes 15 2-5 seconds; Craig ran the hundred yard dash in 9 4-5 seconds; McGrath hurled the sixteen-pound hammer 187 feet four inches, beating the figures he made in 1908 by 14 feet four inches, and Sheridan threw the discus 141 feet 4 3-8 inches.

The senior championship of the Amateur Athletic Union were held at Pittsburgh on June 30 and July 1, the Irish-American A. C. winning with a total of 58 points as against 28 points scored by the New York A. C. Other teams entered and their scores were: Seattle A. C., 12; Olympic Club, 11; Boston A. C., 7; Cleveland A. C., 7; Kansas City A. C., 6; and Chicago A. A., 6. The Irish-American A. C. also was successful in the junior events, rolling up a total of 37 points. The all-round championship was contested for in Chicago on August 12. There were nine entries in the ten events. F. C. Thompson of Princeton University won for the second year in succession with a score of 6709. The record for this event is held by Martin J. Sheridan, who in 1909 made 7385 points.

The thirty-sixth annual track and field meet of the Intercollegiate Association of Amateur Athletes of America was held at Soldiers' Field, Cambridge, Mass., on May 26 and 27. Four new records were made and three others equalled. The new records were established by Jones of Cornell, who ran the half mile in 1:54 4-5 and the mile in 4:15 2-5; by T. S. Berna, also of Cornell, who ran the two miles in 9:25 1-5; and by Horner of Michigan, who put the sixteen-pound shot 46 feet 7 1-8 inches. The largest number of points was scored by Cornell, which had a total of 30 1-2. Yale was second with 24 1-2 and Michigan third with 24. Other colleges scoring points were Pennsylvania, 18 2-3; Dartmouth, 9; Princeton, 8; Harvard, 6; Amherst, 5; Columbia, 5; Massachusetts Institute of Technology, 3 1-3; Williams, 3; Rutgers, 2; Pennsylvania State College, 2; and Brown, 1.

The University of Missouri won the annual

meeting of the Conference Colleges of the West, held at Minneapolis on June 3, scoring 35 points. The totals for the other colleges were: Chicago, 25 2-3; California, 20; Illinois, 19 5-12; Wisconsin, 19 1-2; and Notre Dame, 16.

In the New England Intercollegiate championships held at Springfield on May 20, Williams was the victor with a total of 30 points. Dartmouth finished second with 24 and Massachusetts Institute of Technology third with 18. Other point winners were: Maine, 14; Vermont, 12; Amherst, 11; Bates, 10; Brown, 9; Worcester Polytechnic Institute, 8; Wesleyan, 6; Colby, 5; Trinity, 5; and Holy Cross, 2.

The championships of England were held at Stamford Bridge, London, on July 1, and as in 1910 F. L. Ramsdell of the University of Pennsylvania won the 100-yard and 220-yard dashes. The winners in the other events were: 120-yard hurdles, P. O'Rourke of Phillips College, Cambridge; 440-yard run, F. J. Halbaus, Canada, half mile, H. Braun, Germany; 1 mile, D. F. McNicol, Polytechnic Harriers, England; broad jump, P. Kirwan, Irish American A. C., New York; 4-mile run, H. Kolehmainen, Finland; pole vault and high jump, R. Paseman, Germany; 16-pound shot, J. Barrett, Limerick A. and B. C.; 16-pound hammer, G. E. Putnam, Oxford. The empire championship between England, Australasia, and Canada was won by Canada.

In the Oxford-Cambridge, Yale-Harvard meet the British collegians were the victors by a score of 5 to 4, first places alone counting. The deciding event was the shot put, which was won by G. E. Putnam, an American student at Oxford. The Oxford-Cambridge meet was won by Cambridge. The Olympic games will be held at Stockholm, Sweden, in July, 1912. See CROSS COUNTRY RUNNING.

ATLANTIC CITY. See NEW JERSEY.

ATLANTA. See GEORGIA.

ATOMIC WEIGHTS. See CHEMISTRY.

ATWOOD, H. N. See AERONAUTICS.

AUCKLAND ISLANDS. A dependency of New Zealand (q. v.).

AUDOUX, MARGUERITE. See FRENCH LITERATURE, FICTION.

AUSTIN, ALFRED. See LITERATURE, ENGLISH AND AMERICAN, *Literary Biography*.

AUSTIN DAM. See PENNSYLVANIA.

AUSTRALIA, COMMONWEALTH OF. A British self-governing dependency, consisting of six federated states. The temporary seat of the federal government is Melbourne, Victoria. The permanent capital will be at Yass-Canberra, in the federal district within the state of New South Wales. The government took over the federal district at the beginning of 1911, and during the year much progress was made in carrying out the plans for the new city.

AREA AND POPULATION. The estimated area and the population (exclusive of aborigines), according to the census of March 31, 1900, and final returns of the census of April 3, 1911, are shown below by states:

States	Sq. mi.	Pop. '01	Pop. '11
New South Wales....	310,372	1,354,846	1,648,448
Victoria	87,884	1,201,070	1,315,551
Queensland	670,500	498,129	605,813
South Australia*	903,690	363,157	411,869
Western Australia ..	575,920	184,124	282,114
Tasmania	26,215	172,475	191,211
Commonwealth	2,974,581	3,773,801	4,445,005

* Including the Northern Territory.

The Northern Territory (area, 523,620 square miles) was under the jurisdiction of South Australia from 1863 to January 1, 1911, when it was transferred to the Commonwealth. In 1905 the Commonwealth assumed the administration of Papua (q. v.). Its population in 1911 was only 3310. The number of civilized and semi-civilized aborigines returned in the 1911 census was 19,939. Capital cities with population, including suburbs, according to 1911 preliminary census returns: Sydney, N. S. W., 637,102; Melbourne, Victoria, 591,830; Adelaide, S. A., 192,104; Brisbane, Qld., 141,342; Perth, W. A., 84,580; Hobart, Tas., 38,055;—other cities: Newcastle, N. S. W., 65,500; Ballarat, Vict., 44,000; Bendigo (Sandhurst), Vict., 42,000; Broken Hill, N. S. W., 31,000; Geelong, Vict., 28,880; Launceston, Tas., 24,536. Movement of population in 1910, for the Commonwealth: Births, 116,894; deaths, 45,634; marriages, 36,581; oversea arrivals, 95,692; departures, 58,145.

EDUCATION. Public instruction is under the control of the separate states. Primary instruction is free and compulsory. The following figures relate to 1909:

	N. S. W.	Vict.	Qld.	S. Aust.
State schools	3,075	2,035	1,141	722
“ teachers	5,431	4,868	2,521	1,294
Enrollment	218,248	205,278	88,865	53,748
Av. att'dance	160,080	146,106	69,755	38,255
Expenditures:				
Main-				
tenance	£940,534	£726,020	£809,704	£ 164,863
Buildings	£149,767	£162,932	£ 57,349	£ 31,512
Pri. schools..	789	678	168	186
“ teachers..	3,633	2,178	777	688
Enrollment	67,982	53,821	15,963	11,643
Av. att'dance	48,792	43,000	13,658	9,200

	W. Aust.	Tas.	C'with.
State schools	434	380	7,787
“ teachers	954	720	15,788
Enrollment	31,341	26,756	624,236
Av. attendance	26,673	17,391	458,260
Expenditure:			
Maintenance	£166,103	£ 73,532	£2,380,756
Buildings	£ 31,099	£ 8,442	£ 441,101
Private schools	121	140	2,082
“ teachers	414	420	8,110
Enrollment	8,506	6,513	164,428
Av. attendance	7,209	5,210	127,069

There is a number of superior and technical schools. For 1909, the four universities, Sydney, Melbourne, Adelaide, and Tasmania (at Hobart), reported 236 teachers and 3041 students.

MINERALS. The following table shows the value of the most important minerals, and the total for all minerals, produced in 1909, and the grand total of production from the beginning of mining in Australia up to the end of that year:

	N. S. W.	Vict.	Qld.	S. Aust.
Gold	£ 869,546	£2,778,956	£1,835,178	£ 54,354
Coal	2,618,596	76,945	270,726	.....
Copper	424,737	44	853,196	342,329
Silver	.....	.....	.....	416
lead*	1,484,641	.....	.....	.....
Zinc	1,041,280	.....	.....	.....
Tin	211,029	7,067	244,927	32,741
All minerals	7,406,940	2,900,624	3,655,198	478,126
Grand total	198,290,805	288,368,506	92,358,833	31,657,599

	W. Aust.	Tas.	Cwith.
Gold	£ 6,776,274	£ 190,201	£ 12,604,509
Coal	90,965	26,464	3,083,696
Copper	104,644	608,038	2,332,988
Sil.-lead*	1,199	298,880	1,785,136
Zinc	244	.....	1,041,524
Tin	65,959	418,165	979,888
All minerals	7,059,052	1,545,222	23,045,162
Gr. total	94,941,159	32,368,587	737,985,489

* Silver-lead bullion and silver-lead ore, but not fine silver or lead pig.

Commonwealth production to end of 1909: Gold, £514,091,517; silver and lead, £60,324,687; copper, £54,196,026; tin, £27,728,900; Coal, £66,537,972; other, £15,196,387; total, £737,985,489. Gold production reached its maximum in 1903, when the output in Western Australia was valued at £8,770,719 and in the Commonwealth £16,294,684. Gold production to the end of 1909 (beginning with 1851 in New South Wales and Victoria): N. S. W., £57,189,282; Vict., £285,100,389; Qld. (from 1860), £70,224,573; S. Aust. (from 1856), £2,840,206; W. Aust. (from 1886), £91,780,563; Tas. (from 1867), £6,956,504; Com'wealth, £514,091,517.

AGRICULTURE. The acreage under crop (exclusive of grasses) and under artificially sown grasses respectively was as follows in the year 1909-10: N. S. W., 3,180,561 and 888,937; Vict., 8,658,535 and 988,671; Qld., 606,790 and 108,438; S. Aust., 2,530,301 and 23,343; W. Aust., 722,086 and 9017; Tas., 274,026 and 439,450; Commonwealth, 10,972,299 and 2,457,856;—Commonwealth in 1908-9, 9,891,243 and 2,445,403; in 1901-2, 2,278,370 and 1,007,115. The following table shows area and production of chief cereal crops in 1909-10:

	Wheat		Oats	
	Acres	Bu.	Acres	Bu.
N. S. W...	1,990,180	28,582,029	81,452	1,966,586
Vict.	2,097,162	28,780,100	384,226	7,913,423
Qld.	117,160	1,571,589	2,789	50,018
S. Aust....	1,895,738	25,133,851	85,846	1,209,131
W. Aust...	443,918	5,602,368	73,342	1,248,162
Tas.	37,078	793,660	71,293	2,347,548
Cmlth	6,586,236	90,413,597	698,448	14,734,868

	Barley		Corn	
	Acres	Bu.	Acres	Bu.
N. S. W...	15,091	272,663	212,797	7,098,255
Vict.	58,603	1,023,384	19,112	1,158,031
Qld.	13,109	198,586	132,313	2,508,761
S. Aust....	41,895	691,424	210	3,361
W. Aust....	8,022	101,673	153	2,240
Tas.	6,293	153,664	.....	.....
Cmlth.	143,013	2,436,384	364,585	10,770,648

Total value of foregoing crops: Wheat, £18,048,770; oats, £1,727,480; barley, £445,201; corn, £1,621,996. Commonwealth figures for other crops, 1909-10: Potatoes, 137,070 acres, yielding 387,036 tons, valued at £1,637,388; hay, 2,228,029 acres, 3,153,196 tons, £9,530,092; green forage, 308,082 acres; vineyards, 58,151 acres, 4,602,577 gals. of wine, 15,314 tons grapes, and 3,114,496 lbs. raisins. The acreage under sugar cane in 1909-10 was 142,261, of which 86,575 were productive, yielding 1,294,575 tons (of which Queensland 128,178 and 80,095 acres and 1,163,494 tons). Sugar output in 1909-10, 147,470 tons, against 205,576 in 1906-7 (Queensland 132,816 and 182,158).

	Horses	Cattle	Sheep	Swine
N. S. W.	604,784	3,027,727	46,202,578	237,849
Vict.	442,829	1,549,640	12,937,983	217,912
Qld.	556,613	4,711,782	19,593,791	124,803
S. Aust.	253,884	758,080*	6,475,431	81,797
W. Aust.	125,315	793,217	4,731,737	47,062
Tas.	40,492	199,945	1,734,761	55,705
Cmlth.	2,022,917	11,040,391	91,676,281	765,137
1908	1,927,731	10,547,679	87,043,268	695,689
1905	1,673,805	8,525,025	74,403,704	1,014,853

* Including 414,080 in Northern Territory.

Butter output in 1908 and 1909, 145,317,357 and 154,273,252 lbs., cheese, 14,759,788 and 15,774,837. Sheep and lambs slaughtered in the Commonwealth (some of the figures making up these totals are estimates): 1901, 8,972,169; 1905, 8,958,363; 1908, 11,193,357; 1909, 13,346,856. Exports of mutton and lamb preserved by cold process: 1905, 86,858,344 lbs.; 1908, 91,607,614; 1909, 116,915,639; total for five years ended 1909, 495,301,739 lbs., of which 411,170,214 lbs., worth £5,093,090, to the United Kingdom. The 1909 wool output was worth about £28,000,000. Estimated wool production, stated as in the grease, in thousands of pounds:

	1905	1906	1907	1908	1909
N. S. W.	302,494	332,381	375,224	344,551	379,388
Vict.	74,747	78,258	120,018	93,999	112,102
Qld.	72,323	88,068	104,174	115,283	127,532
S. Aust.	41,221	48,928	57,831	52,041	56,416
W. Aust.	19,523	17,438	22,014	22,451	30,048
Tas.	11,753	12,601	10,878	13,860	12,551
Cmlth.	522,062	577,673	690,139	642,184	718,037

MANUFACTURES. The following table shows the number of manufactories, the average number of employees, salaries and wages paid (exclusive of amounts drawn by working proprietors), and value of output:

	Mft.	Emp.	Wages	Output
N. S. W.	4,581	91,702	£ 7,665,125	£ 42,960,689
Vict.	4,765	97,355	6,807,851	32,898,235
Qld.	1,420	29,504	2,324,005	12,823,695
S. Aust.	1,265	26,709	2,028,891	9,928,105
W. Aust.	632	12,813	1,508,360	4,008,604
Tas.	544	9,322	773,424	4,790,405
Cmlth.	13,197	266,405	21,105,456	107,409,733
1908	12,853	257,494	.....	.....

COMMERCE. Imports, domestic exports, foreign exports, and total exports of the Commonwealth have been valued as follows:

Year	Imports	Dom. exp.	For. exp.	Total exp.
1901	£42,433,811	£47,741,776	£1,954,396	£49,696,172
1905	38,346,731	54,127,758	2,713,277	56,841,035
1907	51,809,038	69,816,500	3,007,747	72,824,247
1908	49,799,273	62,118,903	2,192,155	64,311,058
1909	51,171,896	62,843,711	2,475,125	65,318,836
1910	60,014,351	.....	.....	74,491,150

Imports and domestic exports of specie and bullion (included in figures above): 1901, £934,804 and £15,270,219; 1905, £1,550,295 and £11,795,514; 1907, £1,834,200 and £11,187,460; 1908, £1,190,352 and £14,190,220; 1909, £1,056,375 and £8,680,284.

Values of classified imports and exports (domestic) are shown in the following table. The letters indicate: a animal foodstuffs; b vegetable foodstuffs; d alcoholic liquors; e tobacco,

etc.; f live animals; g animal non-foodstuff substances; h vegetable substances and non-manufactured fibres; i apparel, etc.; j oils, etc.; k paints, etc.; l stones and minerals, used industrially; m specie; n metals (unmfd.) and ores; o metals (partly mfd.); p metals (mfd., incl. machinery); q leather and rubber and their mfs.; r wood and wicker; s earthenware, etc.; t paper, etc.; u jewelry and fancy goods; v instruments (scientific, etc.); w drugs, chemicals, and fertilizers; x miscellaneous; y total.

Imports		Exports	
	1908	1909	
a	£ 834,542	£ 751,044	£4,841,315
b	2,192,674	2,741,811	4,780,815
c	1,232,292	1,409,713	8,539
d	1,575,151	1,496,952	112,621
e	778,314	616,221	83,142
f	108,067	113,724	263,737
g	400,748	336,981	25,431,142
h	944,233	997,205	231,618
i	13,844,687	14,765,738	63,304
j	1,190,816	1,337,429	945,113
k	419,809	416,418	3,347
l	119,248	164,069	1,421,304
m	239,088	54,197	9,819,576
n	1,178,535	1,232,610	11,724,275
o	749,036	741,184	25,568
p	10,171,607	10,372,019	225,878
q	932,033	1,080,222	573,742
r	2,343,862	2,060,231	1,038,256
s	855,855	791,705	31,952
t	2,234,930	2,098,638	64,738
u	1,102,644	1,203,528	141,654
v	880,140	412,547	5,613
w	1,916,680	1,744,023	212,421
x	4,054,282	4,233,687	142,233
y	49,799,273	51,171,896	62,118,903
			62,843,711

Exports of wool in the grease and of scoured and washed wool: 1905, 380,420,424 and 56,775,423 lbs., respectively; 1908, 471,846,109 and 70,915,494; 1909, 529,020,213 and 74,082,419. Total value of wool exports for the three years: 1905, £19,822,216; 1908, £22,914,236; 1909, £25,483,110. Exports of wheat and of flour as in bushels of wheat: 1905, 24,648,182 and 7,715,850; 1908, 15,027,388 and 5,840,150; 1909, 31,549,498 and 6,498,450.

The domestic export of gold bullion and gold in matte in 1909 was £3,548,268; of silver bullion, £659,332.

Total imports and total exports including bullion and specie) by countries in thousands of pounds sterling:

Imports		Exports	
Countries	1908	1909	
Great Britain	29,931	31,172	29,476
United States	6,040	5,003	2,395
Germany	3,509	3,331	9,270
New Zealand	2,277	2,195	2,258
British India	1,630	1,794	1,813
Java	316	1,057	260
Belgium	970	968	3,704
Ceylon	684	704	1,613
Japan	544	602	1,268
Canada	321	508	79
Straits Settlements	373	490	576
Norway	315	431	21
France	480	410	5,152
Total, incl. other	49,799	51,172	64,311
			65,319

Share of the states in foreign trade, in thousands of pounds sterling:

States	Imports		Exports	
	1908	1909	1908	1909
N. S. W.....	19,829	20,888	23,721	23,625
Vict.....	16,433	16,532	14,155	17,030
Qld.....	4,516	4,592	6,961	7,220
S. Aust. (incl. N. T.)...	4,972	5,096	8,861	9,031
W. Aust.....	3,212	3,322	8,529	6,687
Tas.....	837	742	2,084	1,726
Cmlth.	49,799	51,172	64,311	65,319

In 1905, tonnage entered in over-sea trade, 3,725,036; 1908, 4,295,879; 1909, 4,361,194 (of British countries, 2,718,472); cleared 1905, 3,719,331; 1908, 4,285,472; 1909, 4,155,557 (of British countries, 2,694,737).

COMMUNICATIONS. The following table shows the mileage, exclusive of sidings and cross-overs, of state-owned lines June 30, 1910, and of private lines December 30, 1909; *a* state-owned; *b* private lines available for general traffic; *c* total open for general traffic; *d* private lines used for special purposes only; *e* grand total.

	a	b	c	d	e
N. S. W.....	3,643	141	3,784	125	3,909
Vict.....	3,491	14	3,505	37	3,542
Qld.....	3,661	353	4,013	192	4,205
S. Aust.....	1,912	...	1,912	58	1,970
N. Ter.....	146	...	146	...	146
W. Aust.....	2,145	277	2,422	565	2,987
Tas.....	469	165	634	39	673
Cmlth.	15,467	945	16,416	1,016	17,433

The mileage of government lines open to traffic increased from 12,578 in 1901 to 13,726 in 1905 and 15,467 in 1910. Mileage (government) under construction, June 30, 1910, 1047; authorized, but not begun, 1140. Cost of construction and equipment of government lines to June 30, 1910, £146,882,474. Gross revenue for year ended on that date, £10,042,000; working expenses, £9,899,000; percentage of working expenses to gross earnings, 61.70, as compared with 59.84 in 1909, 62.65 in 1905, and 64.76 in 1901. Telegraph, exclusive of railway telegraphs, in 1909: lines, 42,298 miles; wire, 89,468; offices, 3507. Post offices in 1909, 5387, as compared with 4994 in 1901 and 4463 in 1891; in 1909 post offices plus receiving offices numbered 7698.

RAILWAYS. The various railway systems of New South Wales showed marked progress during the year, and the North Coast Railway had under construction 190 miles of main line; 103 miles of branches were under construction, and six branches aggregating 115 miles were opened. There had been authorized the construction of 243 miles. The state of Victoria had five lines with a mileage of 211 miles under construction, and three lines aggregating 86 miles authorized. In South Australia four lines amounting to 290 miles were being built and 23 miles had been opened. In western Australia eight lines with 234 miles of track had been opened, and there were under construction, on June 30, nine lines of 354 miles, of which two lines comprising 71 miles were opened subsequent to that date, and six lines with a total of 507 miles were authorized for construction. In Queensland the report was 207 miles opened and a large mileage in hand. During the year the question of the gauge of the Transcontinental Railway from Port Augusta to Kalgoorlie which had been authorized by the

Commonwealth parliament was settled at a standard gauge of 4 ft. 8½ in.

FINANCE. Commonwealth revenue and expenditure for fiscal years ended June 30: 1906, £11,881,924 and £4,497,542; 1909, £14,350,793 and £6,420,398; 1910, £15,540,699 and £7,499,510. Surplus is paid over to the states. Of the 1910 revenue, £9,505,855 was derived from customs, £2,087,310 from excise, and £3,731,741 from posts; of the expenditure, £3,201,554 for posts and £1,148,484 for defense. There is no federal debt.

Statistics for state finance for fiscal year ended June 30, 1910:

	Revenue	Expend.	Debt
N. S. W.....	£14,540,073	£13,038,150	£ 92,525,095
Vict.....	8,597,992	8,579,980	55,576,725
Qld.....	5,119,254	5,113,578	44,276,067
S. Aust.....	4,032,891	4,196,493	*31,387,870
W. Aust.....	3,657,670	3,447,732	23,287,453
Tas.....	1,008,932	997,321	10,570,453
Total	36,956,812	35,373,254	†257,623,663
1909	34,457,640	33,983,842	251,773,533
1902	28,197,927	29,231,385	214,255,209

* Including Northern Territory debt, £2,662,678.

† Against which, sinking fund £4,777,006.

The state debts have been incurred largely for railways and other public works.

ARMY. The operation of the Australian Defense acts of 1909 and 1910, with the object of securing compulsory service, came into effect in June, 1911, in so far as it concerned senior cadet training of males from fourteen to eighteen years of age. Over 150,000 young men were enrolled, and in September 87,389 youths were actually under training, drill centres being established in some 500 different localities, and the provision of suitable armories for such training being an important consideration. The plan of defense provided for compulsory service in three classes: First, junior cadets, 12 to 14 years; second, senior cadets, 14 to 18, and third, a national guard, with service up to 26 years of age. Lord Kitchener's report, under which the military organization of the Commonwealth was being undertaken, recommended an army of 80,000 on a peace basis, divided into a garrison of 40,000, and a mobile force of 40,000; the organization to embrace 84 battalions of infantry, 28 regiments of light cavalry, 224 guns, fourteen engineer companies, and departmental troops. This force was to be formed from those who had undergone the cadet training mentioned above, and on a war basis, the senior cadets, and those of twenty-five and twenty-six years of age who have had military training would be called out to increase the force to 107,000. The plan provided for six days' training every year for men between the ages of twenty and twenty-five, and a division of the Commonwealth into 215 military areas each under a permanent officer of instruction. Ten of these areas would be united to form a group under a superior officer. The plan of organization further provided that every two town, or three country, areas should form an infantry battalion. The army scheme was to be carried out under officers who thoroughly understood the proposed system and needs. Seven years was estimated to involve a total cost of some \$9,000,000. It carried with it the gradual abolition of the volunteer militia.

To secure the necessary officers for such an establishment a royal military college was opened in July, 1911, at Dunbroon, and a small arms factory was being organized at Lithgow. The organization of the army was under the general control of a chief of the general staff, and of the Commonwealth section of the Imperial General Staff, created in August, 1909, Maj.-Gen. Sir J. C. Hoad, K. C. M. G., who is also director of defense organization, military training, and intelligence.

In contrast with the proposed plan in course of development, the military system existing in 1911 involved an elastic framework capable of expansion. The garrison force for both peace and war amounted to 12,000, while a field force was maintained on a peace basis half of the war strength. The peace establishment consisted of 6500 light horse with twenty-four guns, and 7500 infantry with thirty-six guns, making a total of 14,000 and sixty guns, which in time of war would be increased to 28,000, all ranks, with eighty-four guns. Including the garrison troops there would a total of 26,000 men on a peace basis, and 40,000 for the war strength of the Commonwealth, to which might be added some 7000 light horse provision train, 9103 cadets, and 28,721 rifle-club members, making a grand total of all available forces 2400 officers and 60,000 of other ranks.

NAVY. In 1911 the Commonwealth government adopted a plan of naval construction covering a period of twenty-two years and providing for a fleet of 8 dreadnought cruisers, 10 protected cruisers, 18 destroyers, 12 submarines, and 3 depot ships for flotillas, and 1 fleet repair ship, the total cost to be £23,000,000. This sum, however, does not include initial and annual charges for naval works, such as docks, etc. It was officially stated that the primary object of the navy is to support the empire's command of the sea, and the secondary object to protect Australian ports and shipping from hostile raids. September, 1912, was fixed as the date of completion of the ships of the first fleet unit: the *Australia*, an armored cruiser of the *Indomitable* type (launched at Clydebank, October 25, 1911); 3 second-class protected cruisers; 6 destroyers (of which three are completed); and 2 submarines (one not to be completed till 1913). Before these ships were begun the navy consisted of 12 vessels; 1 armor-plated turret ship (the *Cerberus*, 3480 tons), one steel cruiser the *Protector*, 920 tons), 2 steel gun vessels, 2 first-class torpedo boats, 4 second-class torpedo boats, and 2 torpedo launches.

GOVERNMENT. The executive authority is vested in a governor-general, appointed by the crown and assisted by a responsible ministry. The legislative power devolves upon a parliament of two houses, the Senate (thirty-six members, six from each state), and the House of Representatives (seventy-five, in proportion to state population). Members of both houses are elected by universal adult suffrage. There are separate state parliaments, which are elective; but the state governors are appointed by the crown. The Earl of Dudley, who became governor-general in 1908, was succeeded in July, 1911, by Baron Denman.

Ministry in 1911 (constituted April 29, 1910): Prime Minister and Treasurer, Andrew Fisher; Attorney-General, William Morris Hughes; External Affairs, Josiah Thomas (1911); Home

Affairs, King O'Malley; Postmaster-General, C. E. Frazer (1911); Defense, George Foster Pearce; Trade and Customs, Frank Gwynne Tudor; without portfolio, Senator G. McGregor, Senator Edward Findley, and H. A. Roberts (1911).

HISTORY

GENERAL POLITICAL SITUATION. The Deakin ministry, which had lasted from July, 1905, to November, 1908, was succeeded by a Labor ministry under Mr. Fisher as premier, but on the reopening of Parliament on May 26, 1909, this ministry was, in turn, defeated by a union of the opposition groups. A new coalition ministry was formed at that time under Mr. Deakin, but in the general elections of April 13, 1910, the Labor party obtained a majority of 10 in the Senate and 13 in the House, and on April 20, Mr. Fisher again formed a Labor ministry. By January 1, 1911, the Commonwealth had completed the first ten years of its history. Some of its notable achievements at that time were: First, the formal acquisition of its own capital site and territory. Second, the financial independence of the federal government through the expiration of the Braddon clause of the constitution, according to which the states were to receive during the first ten years of the Commonwealth at least three-fourths of the Commonwealth's customs and excise revenues. A new arrangement was made in 1910 whereby the states were to receive for the next ten years twenty-five shillings per head of the population as their share of the Commonwealth revenues. Third, the control of the Northern Territory by the Commonwealth. Fourth, the adoption of a comprehensive scheme of defense, involving the principle of compulsory training. At the beginning of 1911 the Labor party was in control, not only in the Commonwealth government, but throughout most of the states. The leading political issue was raised by its attempt to carry into effect its policy of extending the powers of the federal government.

THE REFERENDA. In November, 1910, the Commonwealth Parliament passed the two constitutional amendment bills. These embodied several important amendments to the constitution, providing for a great extension of the lawmaking power of the federal government over industry and commerce, giving the federal government control over all corporations operating in the Commonwealth, and the right to legislate upon trade, commerce, and industries, including questions of wages, employment, and trade disputes, and to exercise its authority over monopolies and combinations, and providing for national acquisition and control of any business which should have been declared by resolution of each house of Parliament to be a monopoly. The constitution requires that any amendment to it shall first be passed by Parliament and then submitted to the people in a referendum. Accordingly on April 26, 1911, the amendments dealing with the legislative powers were embodied in one referendum and that dealing with the nationalization of monopolies in another, and the two referenda were submitted to popular vote. At first leaders on both sides urged the public not to regard the amendments as party measures, but to decide upon them on their merits. As the campaign went on, however, the party lines became distinct and the contest grew exceedingly bitter. The Liberal

opposition accused the Labor government of an attempt to despoil the states of their rights and of rushing down the path towards socialism. On behalf of the ministry, it was urged that as matters stood the federal government was powerless to make laws embodying the will of the people as expressed in the last election, and that without these amendments Parliament could not exercise the power with which the constitution had endowed it. To this the opposition replied that while some changes were necessary, no such drastic means, however, were required for enabling Parliament to exercise its proper functions. On the one side the cry was, a national Australia; and on the other, it was state rights. The result of the vote was a complete defeat for the government. The referendum was rejected by a majority of nearly a quarter of a million out of a vote of 1,200,000. The actual vote was as follows: On the referendum as to the extension of the legislative powers of the government to commerce and industries, those in favor were 462,412, and those opposed, 714,770; and on the referendum empowering the government to nationalize monopolies, those in favor were 464,703, and those opposed, 707,017. The campaign led to a serious split in the ranks of the Labor party in New South Wales, where a great number voted against the amendments. (See *NEW SOUTH WALES, History*.) The Liberal opposition hailed the results as evidence of the people's common sense and the general disapproval of the government's socializing tendency. The government's friends, on the other hand, attributed their defeat to the general ignorance of the real meaning of their proposals and to the use of money on the part of the opposition in the course of the campaign.

NAVAL PROGRESS. The first ship of war ever built in Australia, the *Warrego*, was launched at Sydney on April 4, 1911. Two foreign built destroyers, the *Yarra* and the *Parramatta*, had already arrived in Australian waters, and these three vessels were hailed with popular enthusiasm as marking a definite stage toward the creation of the first naval unit. This first unit which was to be completed by September, 1912, was to comprise one armored cruiser, three protected cruisers, six destroyers, and three submarines. The armored cruiser, the *Australia*, was launched in October, 1911. It was at first arranged that the imperial government should pay a share of the cost of maintenance, but at the express request of the Commonwealth government, Australia assumed the entire burden. Questions as to methods of establishing and maintaining the fleet had been under discussion for several years. Finally the government requested a naval expert, Admiral Henderson, to report on this subject. His report as to the size and nature of a fleet which should be suitable for defense, and proportionate to the population of the country, was published in March, 1911, and the government based on it its naval programme (see above, *Navy*). Early in the year a naval board was appointed, with the minister of defense as president and the director of the Commonwealth Naval Affairs as senior member.

OTHER EVENTS. The appointment of Lord Denman to succeed the Earl of Dudley as governor-general was announced in March. The treatment of the natives of northwestern Australia was called in question early in the year, and the government was asked concerning its

policy in dealing with certain alleged abuses. The programme then outlined included the appointment of medical officers and of an official to look after the interests of the natives; and also a reserve force for the maintenance of order. The Australian railways, of which the per capita mileage is the longest in the world, had the disadvantage of being of different gauges, each state having begun its own system and adopted a gauge without reference to the subsequent necessity of linking up with another line. Thus the traveler from Brisbane to Melbourne is obliged to change trains on the New South Wales border and again on the Victoria border. Apart from this inconvenience, military considerations drew attention to the grave need of a uniform gauge in time of war and at a meeting of the railway commissioners such uniformity was recommended, the preference being the gauge of the New South Wales line, 4' 8½". The cost of making this improvement was to be divided between the Commonwealth and the states. This gauge had already been adopted by the new line projected between Western Australia and the eastern states. Other important events in the Australian development were the adoption of penny postage, which went into force on May 1, and the establishment of a new university at Brisbane. The government, as a part of its legislative programme, early in July presented a very extensive railway project, namely, the completing of the East and West Transcontinental Railway. Other features of the programme as announced in that month were a Commonwealth Banking bill, and bills unifying the Australian Bankruptcy law and amending the Arbitration and Electoral acts. It was also announced that the Navigation bill, which failed of passage in the preceding year, would be resubmitted. On the opening of Parliament on September 5, Lord Denman outlined the government programme, of which the principal features were: The amendment of the Conciliation and Arbitration act, the establishment of a Commonwealth bank, and the building of the transcontinental railway. Other matters that were to receive the serious consideration of the government were: Life, fire, sickness, and unemployment insurance, and the consideration of the state debts.

For reference to labor arbitration in Australia, see **ARBITRATION AND CONCILIATION, INDUSTRIAL**.

AUSTRALIAN ANTARCTIC EXPEDITION. See **POLAR RESEARCH**.

AUSTRIA. See **BATTLESHIPS**.

AUSTRIA-HUNGARY. A constitutional monarchy of central Europe, consisting of the Austrian empire and the Hungarian kingdom, united under one sovereign, besides the common territory of Bosnia and Herzegovina (annexed October 5, 1908). The capital of Austria is Vienna, and of Hungary, Budapest.

AREA AND POPULATION. The area of Austria is stated at 300,193 square kilometers (115,905 square miles); Hungary, 324,857 square kilometers (125,427 square miles); Bosnia and Herzegovina, 51,199 square kilometers (19,767 square miles); total, 676,249 square kilometers (261,100 square miles). The following table shows in detail the area and the population according to the censuses of December 31, 1900 and 1910 (the last column showing population per square kilometer at the end of 1910):

	Sq. kil.	Pop. 1900	Pop. 1910	
Lower Austria.	19,854	3,100,493	3,530,698	178
Upper Austria.	11,994	810,246	852,667	71
Salzburg	7,163	192,763	214,997	30
Styria	22,449	1,356,494	1,441,604	64
Carinthia	10,333	367,324	394,735	39
Carniola	9,965	508,150	525,083	53
Trieste and ter- ritory	95	178,599	229,475	..
Görz and Gra- disca	2,927	232,897	261,721	89
Istria	4,951	345,050	403,261	81
Tyrol	26,690	852,712	946,498	35
Vorarlberg	2,570	129,237	145,794	57
Bohemia	51,967	6,318,697	6,774,309	130
Moravia	22,231	2,437,706	2,620,964	118
Silesia	5,153	680,422	756,590	147
Gallcia	78,532	7,315,937	8,022,126	102
Bukowina	10,456	730,195	801,364	77
Dalmatia	12,863	593,784	646,062	50
Total Aus...	300,193	26,150,708	28,567,898	95
Hungary proper	282,323	16,838,255	18,221,387	95
Croatia and Slavonia	42,534	2,416,304	2,619,291	62
Total Hun...	324,857	19,254,559	20,840,678	64
Bosnia and Herzegovina ..	51,199	1,591,036*	1,931,802†	37
monarchy	676,249		51,340,378	76

* Of whom 22,944 military. † Of whom 32,758 military.

Emigration has been as follows: 1907, 386,528 from the monarchy (of whom 177,354 from Austria); 1908, 101,275, (56,214); 1909, 272,266 (143,532); 1910, 278,840 (148,638). Population of the larger cities, according to the census of December 31, 1900, and provisional returns of the census of December 31, 1910: In Austria, Vienna, 1,711,556 and 2,030,850; Trieste, 134,143 and 229,475; Prague, 201,589 and 224,721; Lemberg, 159,877 and 206,574; Gratz, 138,080 and 151,668; Cracow, 91,323 and 151,318; Brünn, 109,346 and 125,008; Czernowitz, 67,622 and 86,870; Pilsen, 68,079 and 81,165; in Hungary: Budapest, 732,322 and 881,601; Szegedin, 102,991 and 118,147; Szabadka (Maria-Theresiopel), 83,593 and 94,952; Debreczen, 75,006 and 92,088; Zagráb (Agram), 61,002 and 78,850; Pozsony (Pressburg), 65,867 and 77,953.

EDUCATION. Elementary instruction is free and compulsory throughout the monarchy. In Austria there were at the end of 1908 22,985 elementary schools, including 1174 private (against 22,614 and 1166 the year before), with 102,937 teachers and 4,377,913 pupils; children of school age, 4,618,097; training colleges, 131. In 1910 gymnasias numbered 278 (95,867 students); realschulen, 144 (47,519). There are various technical, professional, and special schools, with a large number of students. The state maintains eight universities, which in 1910-11 were reported to have 1631 teachers and 28,662 students (Vienna: 539 and 9736, German;—Prague: 165 and 1844, German; 249 and 4432, Bohemian;—Cracow: 188 and 3308, Polish;—Lemberg, 178 and 4824, Polish.) The eight government technical high schools had in 1910-11 784 teachers and 11,828 students.

In Hungary, there were in 1909 2745 infant schools, with 238,129 infants. In 1908-09 elementary schools numbered 19,175, with 44,280 teachers and 2,868,889 pupils; children of school age, 3,145,006; training colleges, 95, with 1170 teachers and 10,457 students; gymnasias, 187, with 3701 and 60,518; realschulen, 43, with 98

and 13,213. As in Austria, there are many technical and special schools. In 1909 the technical high school in Budapest had 155 teachers and 1349 students. The state maintains three universities: Budapest, with 351 teachers and 6491 students in 1909; Klausenburg, with 136 and 2078; and Agram, with 87 and 1055.

AGRICULTURE. The area in thousands of hectares (ha.=2.471 acres) planted to the principal crops in 1909, and their production in thousands of metric quintals (qu.=220.46 pounds) are reported as follows:

Crops	Austria		Hungary	
	1000 ha.	1000 qu.	1000 ha.	1000 qu.
Rye	2,078	29,068	1,076	12,002
Oats	1,851	24,957	1,191	14,207
Barley	1,131	17,281	1,220	16,158
Wheat	1,191	15,912	3,561	34,023
Corn	336	4,090	2,858	46,640
Buckwheat ...	159	1,380	19	135
Mixed grain ..	50	814	89	888
Millet	40	406	.....	.....
Pulse	277	3,195	789	2,269
Flaxseed	45	216	17	52
Hempseed	24	144	65	249
Tobacco	5	73	50	724
Hops	23	85	.....	.....
Potatoes	1,233	130,531	679	54,530
Sugar beets ...	212	55,416	114	26,257
Other beets ...	218	41,680	215	63,505
Vines	230	6,253*	341	4,364*

* Thousands of hectoliters of wine.

The following table shows the area harvested and the production of principal cereals in 1910, in thousands of hectares and thousands of metric quintals:

Crops	Austria		Hungary	
	1000 ha.	1000 qu.	1000 ha.	1000 qu.
Rye	2,061	27,672	1,214	13,879
Oats	1,833	20,632	1,166	10,845
Barley	1,102	14,722	1,163	12,227
Wheat	1,214	15,673	3,794	49,368
Corn	312	4,417	2,830	54,229

MINING. In Austria, the total value of mining products (exclusive of salt, petroleum, etc.) was 317,833,337 kronen in 1908 and 317,501,821 in 1909; furnace products, 136,920,722 and 137,235,740 respectively. The most important metal is iron, the ore produced in 1909 amounting to 2,490,277 metric tons, valued at 22,729,690 kronen; pig iron, 1,465,051 tons, 117,083,965 kronen. Coal produced in 1909, 13,713,043 metric tons, 141,342,818 kronen; lignite, 26,043,716 tons, 138,684,501 kronen; salt, 359,801 tons, 46,740,565 kronen. The values of the principal raw metals and of coal produced are reported as follows, in thousands of kronen:

	1900	1905	1908	1909
Pig iron....	82,304	83,227	117,159	117,084
Zinc	3,164	5,283	5,916	5,942
Lead	4,722	4,810	4,716	4,676
Silver	3,908	3,754	3,414	3,256
Mercury ...	2,495	2,551	3,035	3,170
Copper	1,538	1,508	1,060	1,442
Lignite	112,635	100,957	140,150	138,685
Coal	95,591	99,875	139,716	141,343

Persons employed, in Austria, in 1908 and 1909, respectively: In mining (exclusive of petroleum and salt works, etc.), 148,634 and 149,955; in smelting, 9446 and 8949; in salt

works, 7052 and 5654 (exclusive of sea-salt works).

In the kingdom of Hungary the values of the principal mineral and smelting products are reported to have been as follows, in thousands of kronen:

	1905	1907	1908	1909
Lignite	39,121	51,887	62,540	68,842
Pig iron	33,723	36,329	43,557	42,730
Coal	11,345	14,721	16,116	17,965
Iron ore	8,269	11,439	13,287	14,526
Gold	12,017	11,479	10,787	8,933
Silver	1,618	1,266	1,132	940

Persons employed, in Hungary in 1908 and 1909, respectively, in mining and smelting, 81,053 and 84,568; and in salt works, 2532 and 2530.

MANUFACTURES. Manufacturing industries are of much greater importance in Austria than in Hungary, which is more distinctively agricultural. The latest comprehensive statistics of Austrian manufactures are for the year 1902, when productive industries numbered 652,424 (629,809 principal and 22,615 subsidiary), with 2,869,457 employees and 1,558,582 horsepower; trade and transport, 399,412 industries (370,302 principal and 29,110 subsidiary), with 716,299 employees and 229,285 horsepower; in home industries, 463,564 workers; persons dependent on all these industries, over 7,000,000. For Hungary, the latest comprehensive figures are for the year 1900, when the workers in the various industries (including trade, etc.) numbered 1,127,730, and the total number dependent thereon, over 2,600,000.

COMMERCE. The following table shows, in thousands of kronen, the special trade in merchandise of the common customs territory of the monarchy (imports for consumption and exports of domestic produce) and the imports and exports of coin and bullion:

	1907	1908	1909	1910
Imps.				
Mdse.	2,501,974	2,398,094	2,746,331	2,852,852
C. & B..	43,786	83,515	237,101	43,101
Total	2,545,760	2,481,609	2,983,432	2,895,953
Exps.				
Mdse.	2,457,286	2,255,268	2,318,868	2,418,606
C. & B..	78,866	66,535	128,331	80,930
Total	2,536,152	2,321,803	2,447,199	2,499,536

Values, in thousands of kronen, of the more important classes of imports and exports in the special trade are shown in the table below. The letters at the left indicate: *a* cotton and its manufactures; *b* wool and its manufactures; *c* cereals, flour, etc.; *d* coal and other fuel; *e* vegetables, fruits, etc.; *f* animal products; *g* iron and steel and their manufactures; *h* other common metals and their manufactures; *i* machines, apparatus, etc.; *k* vehicles and vessels; *l* instruments, watches, etc.; *m* silk and silk goods; *n* flax, hemp, jute, etc., and their manufactures; *o* colonial produce; *p* leather and its manufactures; *q* chemicals, by-products, etc.; *r* minerals; *s* tobacco; *t* rubber and its manufactures; *u* sugar; *v* cattle and draft animals; *w* apparel, etc.; *x* wood and bone manufactures; *y* glass and glassware; *z* paper and its manufactures; *zz* southern fruits.

	Imports			Exports		
	1908	1909	1910	1908	1909	1910
a	301,964	326,944	363,610	58,772	64,121	87,324
b	212,485	264,987	274,280	91,388	99,047	102,543
c	44,963	220,652	107,349	141,339	118,158	116,189
d	222,187	217,083	200,682	356,409	340,949	348,571
e	108,247	156,085	162,181	73,777	82,023	98,896
f	143,315	154,017	174,545	211,832	240,194	232,404
g	67,927	58,288	57,659	35,728	35,833	47,816
h	112,650	113,446	120,448	61,709	69,806	82,543
i	101,977	91,548	106,110	22,851	23,856	30,144
j	20,774	20,781	26,221	9,122	9,237	9,525
k	11,563	14,095	18,094	7,581	9,060	14,778
l	49,021	54,456	57,311	11,356	12,907	13,638
m	98,915	106,794	121,665	47,485	45,622	41,051
n	73,242	74,982	76,444	50,204	55,441	59,134
o	67,946	71,612	85,583	5	24	15
p	63,302	68,978	79,438	58,744	66,816	68,811
q	75,086	76,931	81,400	42,898	47,596	49,404
r	46,335	50,486	56,454	41,555	45,497	45,230
s	49,483	50,290	54,916	11,369	11,639	13,507
t	33,180	49,138	60,278	15,404	19,064	20,076
u	188	142	162	226,700	240,642	241,019
v	11,799	10,495	10,539	121,580	111,266	97,545
w	23,438	23,008	24,712	78,615	81,219	86,491
x	21,315	22,301	27,008	67,426	66,940	78,111
y	6,739	7,158	8,027	64,053	71,010	74,156
z	30,546	32,113	35,773	59,998	57,248	60,147
zz		39,620	47,498		4,204	4,042

Trade by countries in thousands of kronen:

	Imports		Exports	
	1909	1910	1909	1910
Germany ..	1,067,952	1,153,882	1,044,882	1,062,483
U. States..	231,058	236,920	84,236	81,352
Gr. Brit....	218,606	228,534	241,329	224,433
Br. India..	173,519	214,038	57,850	68,624
Italy	123,124	181,390	233,350	229,390
Russia	181,390	167,212	76,995	90,999
France ..	97,351	112,376	69,209	76,166
Other	653,330	608,868	511,017	585,159
	2,746,331	2,852,852	2,318,868	2,418,606

SHIPPING. Movement at the ports in 1909:

	Entered		Cleared	
	Vessels	Tons	Vessels	Tons
Steam	166,457	26,051,515	166,443	26,067,184
Sail	19,915	765,098	19,807	763,241
Total	186,372	26,816,613	186,250	26,830,425
Aus.-H.	150,733	21,638,272	150,671	21,645,827
Total , '08....	180,377	23,186,911	180,301	23,183,199
A.-H., '08....	142,670	16,498,481	141,718	16,277,480

Merchant marine at the beginning of 1910: 473 steamers of 456,216 tons, and 15,007 sailing vessels of 46,747 tons.

COMMUNICATIONS. Railways 1911 15,943 kilometers (28,547 miles), of which 22,925 kilometers (14,245 miles) were in Austria, 21,062 kilometers (13,087 miles) in Hungary, and 1956 kilometers (1215 miles) in Bosnia and Herzegovina. Of the Austrian lines, about seven-tenths, and of the Hungarian about four-fifths, are owned or operated by the state. Austria has about 4200 miles of navigable river and canal, Hungary, about 3200 miles, 2450 for steamers. Post offices (1909): Austria, 9287; Hungary, 5986; Bosnia and Herzegovina (in 1910), 154; foreign, 36. Telegraph (1909): 6839 offices, with 45,489 kilometers of line and 230,801 of wire; Hungary, 4435 offices, with 25,031 and 142,901; Bosnia and Herzegovina, 173 offices, with 4102 and 12,778.

FINANCE. The cost of administering the common affairs of the monarchy is borne by both governments in a proportion agreed to by their

parliaments and sanctioned by the sovereign. The agreement renewed for ten years in 1907 provides that the net proceeds of the common customs be applied to the common expenditure, and the remaining expenditure be satisfied by Austria in the proportion of 63.6 per cent., and by Hungary, 36.4 per cent. The standard of value is gold, and the monetary unit the krone (crown), worth 20.3 cents. In 1906 the expenditure of the monarchy amounted to 419,594,656 kronen (339,805,573 ordinary and 79,989,083 extraordinary); in 1907, 433,529,713 kronen (365,582,523 ordinary and 67,947,190 extraordinary); in 1909, 514,376,180 kronen (394,372,164 ordinary and 120,004,016 extraordinary). These amounts were balanced by the receipts, as follows:

	1906	1907	1909
Net customs ...	154,577,783	162,032,206	169,931,455
Hungarian treasury	5,310,337	5,429,950	6,888,895
Matricular contributions	259,706,536	266,067,557	337,555,830
Total	419,594,656	433,529,713	514,376,180

According to the budget for 1911, estimated revenue and expenditure balanced at 457,903,864 kronen. Estimated expenditure for the army, 367,566,499; navy, 68,657,210.

No loans are contracted jointly by Austria and Hungary. When the union was effected in 1867, existing obligations were assumed proportionally; this debt on January 1, 1911, amounted to 5,199,884,244 kronen.

In Austria, revenue and expenditure have been, in thousands of kronen:

	1907	1908	1909
Revenue	2,253,052	2,388,384	2,888,556
Expenditure	2,209,093	2,373,894	2,788,435

The budget estimates for revenue and for expenditure for 1908 were 2,149,022,233 and 2,148,913,254 kronen, respectively; for 1909, 2,482,062,182 and 2,404,647,482; for 1910, 2,727,741,383 and 2,780,822,657 (2,477,876,201 ordinary and 302,946,456 extraordinary). The larger items of estimated revenue for 1910 were: Railways, 776,176,990 kronen; excise, 371,384,000; direct taxes, 348,939,200; tobacco monopoly, 272,147,000; posts and telegraphs, 170,880,000. The larger estimated expenditures (ordinary and extraordinary): Railways, 735,561,850 kronen; finance, 818,327,143 (including 478,384,244 for public debt); common expense of the monarchy, 350,184,890; posts and telegraphs, 169,503,180; worship and public instruction, 103,001,572; public works, 100,458,323; justice, 86,387,991; national defense, 98,701,330. On January 1, 1911, the consolidated debt was 6,613,800,038 kronen; floating debt, 297,765,671; total, 6,911,565,709.

In Hungary, the revenue in 1908 and 1909 was 1,531,368,000 and 1,750,782,500 kronen, respectively (ordinary, 1,409,321,000 and 1,452,128,717); expenditure, 1,616,245,000 and 1,721,563,951 (ordinary, 1,319,539,000 and 1,392,557,391; sinking fund, 200,390,000, 199,916,227). For 1910 the total estimated revenue was 1,555,777,976 kronen (including 161,992,281 extraordinary) and the total estimated expenditure 1,555,729,907 kronen (including sinking fund, 163,063,554); for 1911, revenue, 1,672,

507,129 (135,337,196 extraordinary) and expenditure, 1,672,457,302 (sinking fund, 138,727,981). Larger items of estimated ordinary revenue for 1911: Railways, 372,000,000 kronen; direct taxes, 278,770,000; excise, 249,540,000; tobacco monopoly, 164,987,000. Larger estimated expenditures: Ministry of commerce, 399,750,270 kronen; ministry of finance, 241,054,170; Hungarian debt, 212,076,759; ministry of the interior, 91,881,451; part in the common expense of the monarchy, 89,590,791; ministry of worship and public instruction, 86,168,293; ministry of agriculture, 68,160,242; debt of the monarchy, 60,619,340; ministry of national defense, 57,617,366. Debt in 1909 (not including Hungary's part in the common debt), 5,075,376,498 kronen; in addition, arrears, etc., 957,516,686; total, 6,032,893,184.

ARMY. The dual monarchy supports an active army with a single organization, according to the compromise of 1867. It is organized on the German basis, and in 1911 consisted of seventeen army corps. Each corps, with the exception of the second, consists ordinarily of two infantry divisions, two brigades to a division, one brigade of cavalry, one brigade of field artillery, and one section of train. The second corps, however, consists of three divisions of infantry, while other corps contain mountain troops and varying amounts of cavalry. A reorganization of the army was proposed in 1911 which involved the addition of a period of two years' service, except in the case of the cavalry and the horse artillery, and an increase in the annual contingent of recruits.

The annual contingent in 1911 for the common army of the kingdom, including the navy, was 103,100, of whom Austria was to furnish 59,024, and Hungary 44,076, while the Landwehr in Austria was to receive 19,240 and the Honved in Hungary 12,500. The plan proposed was to increase this annual contingent from 103,100 to 259,500, of whom 91,313 were to be apportioned to Austria and 68,187 were to come from Hungary. Of this contingent 134,500 would serve for two years, 19,000 for three years, and 6000 would serve four years in the navy. At the same time, the contingent of the Austrian Landwehr was to be increased, and the Honved, or Hungarian second line, was to be strengthened, and a reorganization on the lines of the active army was to take place.

In 1911 five cavalry divisions and thirty-four infantry divisions made up the seventeen corps of the active army, with a Landwehr division attached to each regular division. On a peace basis the active army comprised 106 regiments of the line, four regiments of Tyrolese rifles, and twenty-six battalions of regular rifles, making a total of 468 battalions. The cavalry consisted of fifteen regiments of dragoons, eleven of Uhlans and sixteen of hussars, making a total of 252 squadrons. The artillery had been recently reorganized so that each army corps had with it 130 field guns, twenty-four howitzers, and twenty-four guns for the Landwehr division. There were five siege howitzer divisions in the heavy artillery, each with forty-four gun batteries when organized on a war basis, twelve batteries of mountain artillery, and six regiments of fortress artillery. The total strength of the former was given as follows: On a peace basis field army 319,500; Landwehr and Honved 67,200, or a total of 386,700 men. On a war basis this would be increased as follows: Field

army 900,000, Landwehr and Honved 160,000, second reserve 500,000, Landstrum 2,000,000, or a total of 3,500,000.

The plans adopted in 1911 were intended to establish conditions by which the war footing could be more readily realized, as it was estimated that under the conditions then existing the war effective amounted to about 1,800,000 officers and men. The Honved, or national Hungarian army, in times of peace is under Hungarian jurisdiction exclusively, but in times of war is subject to the commander-in-chief.

The affairs of the army and the plans for reorganization were somewhat disturbed during the year by the crisis in the War Office, whereby the war minister, General Baron von Schönaich, retired in September, was succeeded by General von Auffenberg as minister of war. There was continued discussion of the reorganization of the army and military legislation during the year (see *History*), and in December, 1911, a meeting of the Delegations was held at Vienna, and there was voted after a short session a provisional budget for four months, which was based on the credits that had been allowed in the budget of 1911. It was impossible to vote a definite budget on account of the lack of certainty as to the time when a new military law would be passed, as such a law doubtless would increase the military expenses. General von Auffenberg made a speech to the assembly which was marked by unusual frankness, and described the inadequate strength and condition of the Austrian army, which he said had fallen to a point relatively far below that of other European powers. He stated that the maintenance of the national position depended on the proper increase of the army, and said that they were unable to fill the present skeleton organization by more than 30,000 men, and that the effective strength of the infantry companies, ninety-three men, which was less than that of other armies, was not attained on the recent manoeuvres by 50 per cent., while the fourth battalions of each regiment were so weak that he was ashamed to mention the figures. This, of course, made it impossible for commanding officers properly to exercise their commands, and militated against the general efficiency of the army organization. The Hungarian delegation listening to this statement of military conditions, however, took it as a criticism of the delay in the adoption of new military laws which had been discussed at length in the Parliament at Budapest.

The annual manoeuvres for 1911 took place from September 12 to 15 in the valley of Dukla. The troops taking part were the tenth, eleventh, and sixth corps.

NAVY. At the end of 1911 the navy included: Six first-class battleships, aggregating 74,613 tons; six coast defense vessels, 41,700 tons; three armored cruisers, 18,800 tons; six cruisers, 19,533 tons; fourteen destroyers, 5762 tons; forty-three torpedo boats, 6899 tons; six submarines, 1686 tons; total, 167,993 tons. The foregoing, regarded as the effective navy, do not include vessels over twenty years old, transports, colliers, repair ships, etc., torpedo craft of less than fifty tons, and other craft of less than 1000 tons. The naval programme, to be completed by 1916, includes the following vessels, under construction or ordered at the end of 1911: Four battleships (dreadnought type), 80,000 tons; three cruisers, 10,449 tons; six destroyers, 4800 tons; twelve torpedo boats, 2400

tons; six submarines, 1800 tons; total, 99,449 tons. The battleships *Radetzki* and *Zrinyi*, of about 14,300 tons each, were completed on January 15 and September 15, respectively, 1911. Of the four dreadnought battleships under construction, the first, the *Viribus Unitis*, was launched June 24, 1911. This vessel and the second, the *Kaiser Franz Joseph*, are expected to be completed in 1913, and the second pair in 1915. Each of these four is to have a displacement of upward of 20,000 tons and a primary armament of twelve 12-inch guns. The 1911 budget provided for an active personnel of 17,277 officers and men. See **NAVAL PROGRESS** and **BATTLESHIPS**.

GOVERNMENT. The sovereign in 1911 was Franz Joseph I., who was born August 18, 1830, and became emperor of Austria December 2, 1848, and king of Hungary June 8, 1867. His nephew, Archduke Franz Ferdinand, born in 1863, is the heir-presumptive. The ministers at the end of 1911 were: Premier and Minister for Foreign Affairs, Aloys (Count) Lexa von Aehrenthal (appointed 1906); Finance, Stephan (Baron) Burián von Rajecz (1903); War, General Mortiz (Ritter) von Auffenberg (1911). Austria and Hungary have each a representative Parliament of two houses and a responsible ministry appointed by the sovereign. Premier of Austria, Karl (Count) Stürgkh; of Hungary, Charles (Count) Khuen-Héderváry. Croatia and Slavonia and each province of Austria have separate diets.

HISTORY

INTRODUCTION. In 1910 and 1911 as in the preceding year, public interest shifted from the so-called "forward policy" which had made so large a part of political discussion in the three preceding years, and centred rather upon internal problems, of which the race and language questions were the chief. It will be remembered that upon the annexation of Bosnia and Herzegovina in October, 1908, there was much apprehension throughout the world that a European war would be the outcome and much concern over the apparent design of Austria-Hungary to pursue an aggressive policy. These fears, however, were not realized. A peaceful adjustment with Turkey was reached early in 1909 and a little later the war with Serbia, which at one time seemed inevitable, was thwarted by her complete acquiescence in the Austrian demands. In 1910 friendly relations with Russia, which had been interrupted by the annexation and the events which followed, were resumed. Early in that year Bosnia and Herzegovina became a component part of the empire and their new constitution was published on February 21. Throughout 1910 the von Bienerth ministry tried to carry out a conciliatory policy on the race problem, especially as regards the language question, and promoted attempts at compromise between the Germans and the Slavs. But though conferences were held between German and Czech representatives, it was impossible to reconcile their conflicting claims. The question divided the political groups in Parliament and disorganized the national bloc on which the government relied. The ministry was further weakened by the demands of the Czechs for expenditures upon canals in Galicia which the revenues did not justify. The disorganization

of its majority prevented the government from carrying through its measure of fiscal reform.

GENERAL POLITICAL SITUATION. The political situation at the beginning of the year 1911 may be briefly outlined as follows: In the latter part of December, 1910, the von Bienerth ministry resigned, owing to the refusal of the Poles to support the government. This defection of the Poles from the coalition was caused by their dissatisfaction with the government's attitude on the canal question. The Poles continued to demand the carrying out of the Koerber law of 1901 for the construction of waterways and canals in Galicia. The cost of this work was greatly underestimated at first and the government found it impossible under its present heavy financial burdens to carry it into effect. The public debt had increased by 21,000,000 crowns over the previous year, and to meet this deficit an increase in the income tax and succession duties was proposed. In the meanwhile there was much agitation throughout the country on account of the rise of wages and the increased cost of the necessities of life. Consumers' associations were formed to protest against the commercial treaties, and especially objection was raised against the duties on cereals and meats. The Agrarians, on the other hand, explained the higher prices as arising from the higher standards of living, increased profits of the middle man and the higher wages of farm laborers. As to the high price of the meat in particular, they attributed it to the scarcity of forage in 1908 and 1909 and to cattle diseases, and they demanded a more complete closing of the frontier and a more stringent control of imported meats. The government depended for its support in the Reichsrath on the Agrarians and it took only half-way measures to allay the discontent. In spite of these difficulties the Poles insisted that the Koerber law be put into effect and that work be begun on the canal to link the Oder with the Danube, and the Danube with the Vistula. The finance minister, M. de Bilinski, himself a Pole, declared that this would be impossible and the cabinet supported him in refusing the demand. The Poles withdrew their support in the discussion of the budget and the von Bienerth ministry thereupon resigned (December 13, 1910), but Baron von Bienerth was asked to retain his office and constitute a new cabinet.

An important element in the political situation was the failure to compromise the language dispute in Bohemia between the Czechs and the Germans, which for the past three years had been so acute as to check all business in the Bohemian diet. During the last three months of 1910 conferences were held between German and Czech representatives for a compromise on this question. Out of 7460 communes of Bohemia, 6750 spoke only a single language. Of these two-thirds were Czech and one-third German. In 650 communes both languages were spoken. Where one nationality was in the minority, it demanded safeguards against denationalization and the suppression of its own language. The compromise proposed rested on the principle that the communes and even the small judicial and administrative subdivisions should be free to choose their official language, and that their relations with the higher civil authorities should be through an official intermediate bureau which should translate the language of one into the language of the authorities.

The Czechs, however, rejected this as tending to destroy their sovereignty over the two million Germans in the country, and as invading the historic right of the kingdom of Bohemia to remain indivisible. Finally, the negotiators, frightened by the protests or the radical element among the electors, separated without making any agreement. The financial situation was serious owing to the discord in the diet and necessary financial laws could not be passed. The Germans, having failed to reach any compromise on the language question, refused to cease their obstructive tactics. Each nationality naturally attributed the failure of the negotiations to the obstinacy of the other.

THE THIRD VON BIENERTH MINISTRY. The Reichsrath reopened on January 17, 1911. The Czechs demanded a parliamentary ministry, based on the Slav majority in the Reichsrath, but this Baron von Bienerth refused, declaring that a parliamentary ministry should rest on a strong majority, supported by the principal parties and determined to take action on the important legislative measures of the year, especially the budget, fiscal reform, the new military law providing for a two years' service, a new code of military justice, and social legislation, including measures of insurance against invalidism and old-age. Failing to establish a parliamentary ministry, Baron von Bienerth constituted his cabinet as follows: Minister of Railways, Dr. Glombinski, a Pole; Minister of Commerce, Dr. Weiskirchner, Christian Socialist; Minister of the Interior, Count Wickenburg; Minister of Public Works, Herr Marek, a Czech official; Minister of Finance, Dr. Meyer; Minister of Justice, Dr. Hochenburger; Minister of National Defense, Baron de Géorgi; Minister for Galicia, M. de Zalenski; Minister of Public Instruction, Karl (Count) Stürgkh; Minister of Agriculture, Baron von Wildmann, a German; and President of the Council, Baron von Bienerth. To obtain the support of the Poles, the ministry promised to revive the canal question and not to oppose the construction of waterways for Galicia. Herr Marck's appointment was due to a desire to conciliate the Czechs. In general, the Germans were dissatisfied with the ministry, which seemed to make too large concessions to the anti-German element. On the other hand, it was said that the cabinet had been formed without making any new national concessions to the Slavs, and that the government rested on the principle that no concessions should be made except as the result of compromise between the races themselves.

FAILURE OF THE VON BIENERTH GOVERNMENT. The ministry was soon confronted by demands on the part of the parties constituting the majority which it could not satisfy. There was an increasing insistence upon a purely parliamentary ministry, the Czechs and the Slavs of the south complaining that they were not represented in the cabinet. Besides the ever disturbing language issue, the government was embarrassed by the growing dissensions of the majority upon which it depended for support. The Christian Democrats, after the death of Dr. Lueger in March, 1910, were enfeebled by the rivalries of their chiefs, who disputed among themselves for the leadership. The representatives of the cities voted for higher duties to win the support of the Agrarians, thus raising the cost of necessities. Charges of corrup-

tion were made against them, and the party as a whole became disorganized. This was its condition in the spring, and as it was the centre of the coalition upon which the government relied, the situation seemed precarious. Another party in the government coalition was the Polish club, and this, too, was divided into rival factions. Among the adversaries of the government were the Socialists, with eighty-seven votes. Their opposition was very bitter and they took advantage of every opportunity to embarrass the government. The government had to face the prospect of weak support at a time when it was about to present two very important measures, namely, the new military law, and the financial reform necessary to yield the supplies required by that law. Under the terms of the new military law, the term of service was reduced from three to two years for the infantry, and the annual contingent of recruits would have to be increased in proportion to the diminution of the length of service. Thus additional expenses were entailed. It was estimated that after three years the increase in the effectives would be about 58,000 men, making a total in time of peace of 344,000. There was to be a corresponding increase in the navy. (See above paragraphs on *Army and Navy*). The object of these additions was to bring the Austro-Hungarian army and navy up to a strength proportionate to that of the other great powers. The budget which provided for these plans had been accepted by the joint Delegations on February 28, but there was much opposition in the press and the Socialists organized monster demonstrations against this great increase in the burden of militarism.

The Reichsrath heartily approved the reduction in the time of service and other features of the measure, but the great increase in the expenses frightened the deputies. Already the people were burdened with taxes and complaints of the increased cost of living were heard on all sides. The only means of carrying through the measure without unduly increasing these burdens was by the introduction of fiscal reforms. These could not be delayed without falling into serious financial difficulties, for the new dreadnoughts had already been ordered. With its present uncertain and shifting majority the government feared to trust the fate of these important measures to the Reichsrath. The opposition, apparently wishing to take advantage of the situation, demanded the reconstitution of the ministry on a parliamentary basis. At this turn of affairs, Baron von Bienerth unexpectedly ordered a dissolution in March. The elections began on June 13. The result was a crushing defeat of the Clericals and the Christian Democrats. The latter, confident of victory, had urged the government to dissolve the Reichsrath. They had long been entrenched in Vienna and were in control in Lower Austria. They had the advantage of the government support, of the avowed protection of the court, and of the active intervention of clergy and episcopate. But the charges of corruption against their leaders, and especially the action of their representatives in voting for higher duties, raised an unexpectedly bitter opposition, and of the twenty seats which they had held from Vienna they retained only two. They met with the same defeat in Lower Austria where they retained only two seats. The Clericals met with great losses in the Slave districts of Bohemia, Moravia, and

Galicia. Thus the strongest supporters of the government were crushed. The Socialists, against whom Agrarians and Conservatives had united, lost in the provinces, but these gains were offset in Lower Austria and Galicia, so that their number remained the same. The German Liberals made very considerable gains, and became the most powerful of the national groups. Thus, as a result of the elections, Baron von Bienerth found himself without a majority. The Christian Democrats, holding him responsible for their defeat, withdrew their support. The Slavs demanded the resignation of the cabinet and the formation of a ministry to suit their wishes. The German Liberal groups with their increased representation opposed any ministry that should be composed of the different nationalities. At this crisis the von Bienerth ministry resigned and Baron Gautsch von Frankenthurn was summoned to form a new cabinet.

FALL OF THE GAUTSCH MINISTRY. On September 17 the Socialists organized a demonstration in Vienna, and at a mass meeting blamed the authorities for the increased cost of living and the scarcity of dwelling houses. Fighting in the streets followed, and there were ninety cases of injury reported. Many of the rioters were arrested and severe sentences imposed upon them. On the opening of the autumn session on October 5, the spirit of popular discontent was reflected in the Reichsrath where the closing of the Czech schools in Vienna occasioned an outbreak, and where Dr. Adler, the Socialist leader, in a two hours' speech, violently denounced the government policy in the matter of the cost of living and of the recent food riots. At the conclusion of his speech shots from a revolver were fired against the ministerial benches, striking the woodwork near by. The session broke up, and the criminal, a Dalmatian workman, was arrested. He confessed that he had fired the shots at the minister of justice to avenge the victims of the sentences passed by the courts on the food rioters in Vienna. At the end of October the Gautsch cabinet, failing to find a majority and unable to suppress the bitter attacks of the Socialists, resigned and the minister of public worship, Count Karl von Stürgkh, was summoned to form a new cabinet. There was another scene of violence in the Reichsrath on November 10, when two Pan-German deputies came to blows, one of them attacking the other with a whip.

OTHER EVENTS. Early in March King Ferdinand of Bulgaria visited the emperor. The emperor and empress of Germany paid a visit to Vienna on March 24. In September the emperor accepted the resignation of General Baron von Schönaich, the Austro-Hungarian minister of war, who was succeeded by General von Auffenberg. His retirement was attributed to conflict of opinions between the war minister and a member of the imperial family. The war between Italy and Turkey was the subject of much discussion in the empire where it was feared that Italy would not confine her military operations to Africa. On December 1, Baron Hoetzendorf, chief of the general staff, and regarded as one of the ablest officers of the army, retired from office, owing it was said, to differences of opinion with Count Aehrenthal as to the future of the Triple Alliance. He was believed to have urged the government to take certain measures, on the assumption that Italy

would attack Austria after possessing herself of Tripoli. This was not in conformity with Count Aehrenthal's policy, which required an attitude of good will, but at the same time of firmness toward Italy. The situation was complicated by the fact that the heir-apparent was believed to be in sympathy with Baron von Hoetzendorf.

AUSTRIAN MUSIC. See **MUSIC.**

AUTOMOBILE FIRE APPARATUS. See **FIRE PROTECTION.**

AUTOMOBILES. During 1911 the prosperity in the automobile industry which has distinguished it since the beginning, continued unabated. The type of motor car has now reached practical standardization. The changes are largely in detail and refinement.

NUMBER OF AUTOMOBILES IN USE. It is difficult to arrive at the exact number of automobiles of all types in actual use in the United States. A careful investigation carried on by the *Automobile* shows approximately 677,000 automobiles in 1911, or one to every 140 of the population. The total number of registrations in all the States up to the close of the year was 717,875. Of these 194,501 were registered during the year. There are, however, many duplications in the registration, so that the total number of motor cars of all types is, as stated above, about 677,000. The largest number of registrations are in New York, where 84,989 cars are registered. California is second, with 59,202; New Jersey third, 48,266; Ohio fourth, 45,739; Pennsylvania fifth, 44,182. These figures relate to ordinary automobiles. In addition, there were registered 25,451 commercial vehicles. Of these 5081 were registered in New York, 2063 in California, and 2062 in Pennsylvania. According to the figures compiled by the *Automobile* there were produced during 1911 by all manufacturers 209,957 cars. These were divided as follows: Gasoline pleasure cars, 194,665; electric pleasure cars, 5634; gasoline trucks, 8500; electric trucks, 853; fire department vehicles, 305.

CHANGES IN CONSTRUCTION. The changes in construction during the year above mentioned are chiefly in matters of detail and in refinement of present construction. Perhaps the most notable feature of the year was the increasing popularity of the double-sleeved motor. Several manufacturers discarded entirely the poppet-valve type of motor. The increased manufacture and sale of six-cylinder cars was a feature of the year. For a time there was doubt if such cars could be sold, but several of the high-priced car-makers began the manufacture of this type and made it a success. Notable improvements have been made in the four-cylinder type, with the general trend toward a longer stroke. In the bodies of the cars there has been little radical change. The most notable is the prevalence of the fore-door type. There was considerable change in the matter of the control of cars. The change of placing the steering column on the left side was well received. Several of the high-priced manufacturers now place it in this position. The limousine type of cars continued in popularity during the year. Many of the touring cars, selling at \$2000 and under, were fitted with limousine bodies and the price was placed around \$3000. The self-starter became a feature of many cars.

MANUFACTORIES. Many new automobile factories were established during the year. It is

difficult to arrive at the exact number of manufacturing, but those who turn out fifty cars or more a year number about 420. The value of the buildings and equipment of these manufacturing is about \$70,000,000. The value of the automobiles made in 1911 is approximately \$272,000,000.

MOTOR TRANSPORTATION. The most important feature of the industry in the last few years has been the increasing use of motor cars for transportation purposes. As noted above there were in 1911 25,451 motor trucks in the United States. During the year 1911 9658 commercial vehicles of all sorts were produced by the American truckmakers. The value of these trucks is about \$56,000,000.

EXPORTS. The increasing value of exports of automobiles from the United States is shown by the figures of the Bureau of Statistics. The exports in 1911 were valued at \$21,636,661, compared with \$14,030,226 in 1910, and \$4,409,186 in 1906. Equally significant is the decrease of imported cars. The value of these in 1911 was \$2,446,248, compared with \$2,737,208 in 1910, and \$4,910,208 in 1906. These figures indicate clearly the increasing popularity of American cars. Most of the automobiles exported from the United States go to British territory. The cars exported into Canada in 1911 were valued at \$7,180,547, or one-third the value of the entire number exported. To the United Kingdom were exported cars to the value of \$3,700,005. Cars in considerable quantity were also exported to France, Germany, Mexico, and Australia. The principal source of the cars imported into the United States is France. Some cars, however, are brought from Germany, from the United Kingdom, and from Italy.

For the employment of automobiles in fire protection see article **FIRE PROTECTION.**

RACING EVENTS. The principal events of 1911 were the Vanderbilt Cup race at Savannah, the Grand Prize race at Savannah, the National races at Elgin, Ill., the Grand Prix races at Boulogne-sur-Mer and Le Mans, France, and the road races at Fairmount Park, Philadelphia, and Santa Monica, Cal. Many new records were established during the year, Harvey Herrick, David L. Bruce-Brown, Ralph Mulford, Robert Burnam, and Ray Harroun being the drivers who carried off the majority of the laurels.

The Vanderbilt Cup race of 291.38 miles was won by Ralph Mulford, who in a Lozier covered the distance in 3 hours, 56 minutes, 67 seconds. This indicated an average speed of 74.07 miles per hour, a new record for this event. Ralph de Palma finished second in the Vanderbilt in a Mercedes, and Spencer Wishart, also in a Mercedes, was third. The Grand Prize contest was won for the second year in succession by David L. Bruce-Brown in a Fiat. His time for the 411.36 miles was 5 hours, 31 minutes, 29.13 seconds, or at the rate of 74.45 miles an hour. In 1910 the same driver in a Benz went 415.2 miles in this event at an average speed of 70.55 miles per hour.

The Elgin National (305 miles) was won by "Len" Zengel in a National car. The driver's time was 4 hours, 35 minutes, 39 seconds, or an hourly average of 66.42 miles. In the Grand Prix races in France Bablot, a Frenchman, was the winner of the event for light cars, his time for the 388 miles being 7 hours, 2 minutes.

The contest open to heavy cars was won by Hemery of France, who covered 395 miles in 7 hours, 6 minutes. The Fairmount Park race was won by E. Bergdoll, who drove a Benz car over the course of 202.5 miles at an average hourly speed of 61.15 miles. In the free-for-all road race at Santa Monica Harvey Herrick in a National car was the winner. He went the 202 miles at the rate of 74.62 miles an hour.

The most important of the records made during 1911 follow: Speedway—1 kilometer, Burman in a Benz, 21.40 seconds; 25 miles, Tetzlaff in a Lozier, 18 minutes, 22.6 seconds; 50 miles, same driver, 36 minutes, 35.8 seconds; 75 miles, same driver, 54 minutes, 50.2 seconds; 100 miles, same driver, 1 hour, 14 minutes, 29.2 seconds; 150 miles, Bruce-Brown, in a Fiat, 1 hour, 57 minutes, 15 seconds; 200 miles, same driver, 2 hours, 39 minutes, 28 seconds, 300 miles, Harroun, in a Marmon, 4 hours, 1 minute, 25 seconds; 400 miles, same driver, 5 hours, 23 minutes, 15 seconds; 500 miles, same driver, 6 hours, 42 minutes, 8 seconds. Straightaway—1 kilometer, Burman in a Benz, 15.88 seconds; 1 mile, same driver, 25.40 seconds; 50 miles, same driver, 35 minutes, 52.3 seconds; 200 miles, Disbrow in a Special, 2 hours, 34 minutes, 12 seconds; 300 miles, same driver, 3 hours, 53 minutes, 33.50 seconds. Circular Track—1 mile, Burnam, in a Benz, 48.62 seconds; 50 miles, De Palma, in a Simplex, 47 minutes, 21.65 seconds.

AVIATION. See AERONAUTICS; MILITARY PROGRESS; NAVAL PROGRESS.

AVIATION SICKNESS, *Mal des Aviateurs*. Crutchet and Mouliner of Bordeaux apply this name to the congeries of symptoms experienced by aviators during rapid ascensions and still more rapid descents. They made scientific examinations of the participants in various French aviation meets and detail the following phenomena: During the ascent, respiration becomes more rapid and shallow and the pulse increases in rapidity at a height of 1500 meters. An indefinable malaise develops, but nausea is not present. A slight deafness is experienced at the height of 1000 meters and at a somewhat greater height noises in the ears commence. Vision remains unimpaired. Some of the other sensations which have been remarked above 2000 meters are headache and sensation of cold and an intense desire to urinate; while the movements of the body become brusque and jerky. The morbid phenomena which distinguish the descent are a sensation of anguish similar to that which accompanies the sudden descent of an elevator, violent palpitations, gradually increased noises in the ears, and a more imperative desire to micturate. A characteristic symptom is a burning sensation of the face, smarting of the eyes, and an almost irresistible desire to sleep. After landing, the aviator does not recover from these sensations for a considerable time. Respiration quickly returns to normal, but arterial hypertension is still well marked and persists for a long period after the flight is finished. These symptoms are evidently caused by rapid changes in the atmosphere, cold, and speed, as well as by nervous excitement.

BABYLON, EXCAVATIONS AT. See ARCHÆOLOGY.

BACILLUS CARRIER. See TYPHOID FEVER.

BADEN. See GERMANY.

BAGANDA. See ANTHROPOLOGY.

BAGDAD RAILWAY. See GERMANY, History, and PERSIA.

BAHAMAS. A British colony composed of twenty inhabited islands and numerous uninhabited isles, islets, and rocks, lying southeast of Florida. Area, 5450 square miles. Population in 1901, 53,735; in 1911, 55,944. Births (1909), 2167; deaths, 1173. Capital, Nassau, on New Providence Island. Government and mission schools (1909), 110, with 9952 pupils enrolled; secondary schools (private), 5, with 167 pupils. Sponge and turtle fishing, and sisal and fruit culture are carried on. Canning and sisal factories and lumber mills employ native labor. Domestic exports of cotton in 1908, 13,090 pounds; 1909, 11,931. Livestock (1909-10), 1630 cattle, 12,881 sheep, 991 horses. Imports (1909-10), £329,014; exports, £193,803; tonnage entered and cleared (1909), 1,294,651; revenue, £84,386; expenditure, £85,315; public debt, £55,639. Governor (1911), Sir William Grey-Wilson.

BAILEY, J. W. See TEXAS.

BAILEY, MARK. An American elocutionist and educator, died June 4, 1911. He was born in 1827. He was a well known elocutionist in his early days and coached Lincoln during his debate with Stephen A. Douglas. He rode in Lincoln's carriage and usually preceded Lincoln and Douglas with a preliminary speech. He was for fifty years instructor in elocution at Yale University, a position which he held until 1905.

BAIRD, JULIAN WILLIAM. An American chemist, died June 26, 1911. He was born in Battle Creek, Michigan, in 1859, and graduated from the University of Michigan in 1882. For two years he was assistant in chemical analysis at that institution and from 1883 to 1886 was instructor in qualitative chemical analysis and assaying in Lehigh University. In 1886 he became professor of analytical and organic chemistry in the Massachusetts College of Pharmacy. From 1895 to the time of his death he was dean of the college. He occupied a prominent position as a chemist and was a member of many chemical societies.

BAKER, NEWTON D. See OHIO.

BAKER, GEORGE HALL. An American librarian, died March 27, 1911. He was born in Ashfield, Mass., in 1850 and graduated from Amherst College in 1874. From 1876 to 1878 he studied at the University of Berlin. From 1884 to 1889 he lectured on bibliography at Columbia University. He was librarian-in-chief of that university from 1889 to 1899 and from the latter date to the time of his death was librarian emeritus. He wrote extensively on art topics, and was editor-in-chief of the Cosmo collection.

BAKER, Sir RICHARD CHAFFEY. An Australian public official, died in March, 1911. He was born at North Adelaide in 1842 and was educated at Eton and Trinity College, Cambridge. He was called to the bar in 1864 and in the same year returned to Australia, where he engaged in the practice of law. In 1870-71 he was attorney-general and from 1877 to 1901 was a member of the legislative council. In 1884-85 he was minister of education. He acted as special commissioner to negotiate several agreements between Great Britain and the colonies. From 1893 to 1901 he was president of the legislative council of South Australia. In the latter year he resigned and entered the federal

parliament. He took a prominent part in the federal movement and was a member of the Sydney conference of 1891 and of the national convention which framed the Commonwealth constitution in 1897-8. He was elected to the first senate in 1909 and became its president. He was reelected to this office in 1904 and held the office until the time of his death. He represented the Commonwealth at the Durbar at Delhi in 1903. He was the author of the *Federal Manual*, and *Constitution of South Australia*, and was a recognized authority on constitutional law and parliamentary practice.

BAKUBA. See ANTHROPOLOGY.

BALDWIN, CALEB COOK. An American missionary, died July 20, 1911. He was born in Bloomfield, N. J., in 1820, and graduated from the Princeton Theological Seminary in 1846. Upon his ordination two years later he was sent to Fuchow, China, by the American Board of Missions of the Presbyterian church. This began a service of fifty years of missionary work in China, and during this period he returned to the United States but three times, in 1859, in 1871, and in 1885. In 1895 he returned permanently to the United States. He translated the Bible into Chinese and compiled a Chinese-English dictionary of 3000 pages. In recognition of his labors in behalf of the Chinese a memorial is to be erected at Fuchow.

BALFOUR, A. J. See GREAT BRITAIN, *History*.

BALL, THOMAS. An American sculptor, died December 11, 1911. He was born in Charlestown, Mass., in 1819 and was educated in the Mayhew School in Boston. For many years he practiced painting and attained a considerable reputation. In 1851, however, he took up sculpture and devoted practically the remainder of his life to that art. From 1865 to 1897 he lived in Florence, Italy. He then returned to the United States. Among his best known works are the equestrian statue of Washington in Washington, the Lincoln Emancipation group in the same city, the statue of Governor Andrew in the State House in Boston, the statue of Daniel Webster in Central Park, New York, and a statue of Charles Sumner in the Boston Public Gardens. In addition to his work as a sculptor, Mr. Ball had great musical ability and was a member of the Handel and Haydn society. In 1848 he sang the part of Elijah in the oratorio of that name, the first performance in America. He was the author of an autobiography entitled *My Three Score Years and Ten*, and numerous lyrics and minor poems.

BALTIMORE. See MARYLAND.

BAMBOO PULP. See CHEMISTRY, *INDUSTRIAL*.

BANFFY, DESIDERIUS, Baron. A Hungarian public official, died May 24, 1911. He was born at Klausenburg, Transylvania, in 1843. He was educated at the universities of Leipzig and Berlin. He entered the government service and became prefect of various colonies of Transylvania. As holder of this office he was ex officio member of the House of Magnates. He was elected deputy and in 1892 became president of the lower house. On the resignation of the Wekerle cabinet in 1895 he was entrusted with the formation of a new ministry. During his administration as premier he rendered conspicuous service to the Liberal cause. He re-

signed both the premiership and his mandate as deputy in 1900.

BANKS, DAVID. An American publisher, died March 11, 1911. He was born in New York City in 1827 and entered the publishing house of his father, David J. Banks, who founded the first firm of law publishers in the United States. He continued in business with his brother Charles and Anthony Bleecker Banks until 1899, when the company dissolved and David Banks with his son, David, Jr., formed a corporation known as the Banks Law Publishing Company. He was well known as a yachtsman and was twice commodore of the Atlantic Yacht Club. He was also a member of many patriotic societies, among them the Society of Colonial Wars and Sons of the Revolution.

BANK CLEARINGS. See FINANCIAL REVIEW.

BANKERS' ASSOCIATION, AMERICAN. See BANKS AND BANKING.

BANK MONEY ORDER SYSTEM. See BANKS AND BANKING.

BANKS AND BANKING. This article gives a statement of the condition of United States banks in 1911, and a discussion of banking reform, the proposed bank money-order system, and the legal aspect of the guarantee of deposits in State banks. In addition to the matter here presented, the reader should consult the following articles: NATIONAL BANKS; STATE BANKS; SAVINGS BANKS; POSTAL SAVINGS BANKS; LOAN AND TRUST COMPANIES; NATIONAL MONETARY COMMISSION; and FINANCIAL REVIEW.

RESOURCES AND LIABILITIES. The aggregate resources of the 24,392 banks of the United States and island possessions reporting to the Comptroller of the Currency on June 7, 1911, were \$23,631,000,000. This was an increase of nearly \$4,000,000,000, or more than 20 per cent., during the past four years. The number of banks reporting included 7277 national, 12,864 State, 635 mutual savings, 1249 stock savings, 1116 private banks, and 1251 loan and trust companies. The national banks were credited with 43.9 per cent. of the aggregate resources; the loan and trust companies with 19.7 per cent.; the mutual savings banks with 15.9 per cent., the State banks with 15.8 per cent., and the stock savings banks with 3.7 per cent. The resources of the private banks were less than 1.5 per cent. of all; it should be stated, however, that of the more than 4000 private banks and bankers in the United States less than 30 per cent. actually reported. Among the resources, the principal item was \$13,046,000,000 of loans and discounts. Of this vast sum 43.3 per cent. was credited to the national banks and about 18 per cent. each to the State banks and to the loan and trust companies. The resources also included bonds and securities valued at \$5,052,000,000 and cash amounting to \$1,554,000,000. This cash included \$856,425,000 in gold coin and gold certificates.

Among the liabilities were: Capital stock, \$1,952,000,000; surplus and undivided profits, \$2,065,000,000; deposits, \$15,906,000,000. Of the deposits, \$8,308,000,000 were individual deposits subject to check without notice, and \$5,446,000,000 were savings deposits. The national banks were credited with 32.8 per cent. of these deposits, the loans and trust companies with 20 per cent., the mutual savings banks with 21.5 per cent., and the State banks with 17.5

per cent. Compared with 1900 there was an increase of 90 per cent. in capital and 120 per cent. in individual deposits.

The geographical distribution of the banks shows that there were 8167 in the Middle Western States; there were 5765 in the Southern States; 4899 in the Western States—that is, the States from Dakota to Montana on the north and to Oklahoma and New Mexico on the south, inclusive; there were 2844 in the Eastern States; 1604 in the Pacific States; 1079 in the New England States; and 34 in the island possessions. With respect to aggregate resources, however, the Eastern States easily outrank all the others, with a total of \$10,009,000,000; this mainly due to the preëminence of New York banks, which State alone showed aggregate resources of \$6,413,000,000. The banks of the Middle Western States had aggregate resources of \$5,738,000,000, and those of New England, \$2,933,000,000. Then came those of the Southern States, with \$2,178,000,000; those of the Pacific States and Western States coming last. This same order was maintained with respect to loans, surplus, and deposits. The State of Iowa had the largest number of banks, 1427. Then came Pennsylvania and Missouri, with 1292 each. Illinois with 1228, Texas with 1188, Kansas with 1082, and Ohio with 1065.

BANKING POWER. Under this term is included the sums of the capital, surplus, and other profits, deposits, and circulation of banks. The total in June, 1911, was \$21,334,000,000, as reported by the 24,392 reporting banks, together with an estimate for 4159 non-reporting banks. The principal item was \$16,514,000,000 for deposits. The remainder, except \$681,740,000 national bank note circulation, was charged to capital, surplus, and other profits. The total was \$3,600,000,000 more than three years earlier, and more than double that of 1900.

BANKING REFORM. For many years the discussion of plans for the reformation of the banking and currency systems of the United States has been carried on almost continuously. This discussion has been especially active since the panic of 1907, with its complete demoralization of banking credit, and particularly since the appointment in 1908 of the National Monetary Commission expressly authorized to investigate banking and currency conditions throughout the world and to propose a plan for legislation. The principal defect which all students have found in the American banking and currency systems is the lack of elasticity, that is, the lack of power to adjust the volume of currency to the volume of business. Indeed it is often pointed out that our currency is perversely elastic, it expands when it should contract and contracts when it should expand. This is due to the fact that it is based on government bonds in such a way that about \$105 of legal money is required to secure \$100 of national banking notes for circulation. The result is that when currency is abundant the banks have found it profitable to buy more bonds, which become the basis for still greater increase in note circulation. On the other hand, when interest rates are high the banks have often preferred to retire their notes and sell the bonds on which they were based, thus securing a somewhat enlarged amount of money for loaning at the high rate. The best means of introducing elasticity is, by general agree-

ment, the introduction of the asset currency principle. By this, banks would be permitted to issue additional notes on the basis of commercial paper and securities of various kinds representing actual business transactions and sound industrial values. When, therefore, the volume of business increases additional notes could be issued to transact it, these notes being retired when no longer needed.

Another serious defect is the lack of coöperation, or undue individualism, in our banking system. The result of this is that each bank in times of stress has stood almost alone, hence each has felt compelled to increase and defend its reserves in times of declining confidence rather than to lend aid to a needy neighbor. Under our present system not less than one and one-fourth billion dollars are scattered about over the country in about twenty-five thousand different banks. All of this huge sum is idle in normal times and in panic periods is so distributed as actually to delay or prevent the restoration of confidence. Bankers and economists have, therefore, almost unanimously agreed that what is needed is some means of centralizing these reserves into a common fund. They would then be available for rediscounting the commercial paper of individual banks, thus greatly increasing their banking power. They would also be available wherever and whenever unusual business demands arose. They would especially be usable in times of incipient panic as a means of checking the shrinkage of credit and the disappearance of confidence.

Added to these two major defects, and perhaps incidental to them, is the lack of control over improper banking methods and undue tendencies toward speculation. It is therefore generally agreed that to the mobilization of bank reserves should be added some means of increased supervision whereby over-expansion of banking credit at any point could be prevented by the banking world itself. Such supervision is exercised in the large cities by the clearing-house association over its members. It is exercised in foreign countries by the central banks, and in Canada by the principal banks over their branches. This opinion is a chief argument with those favoring the organization of a central bank in this country. It is clear that the introduction of the asset currency principle would involve great danger of inflation, unless the volume of issues were controlled by some central agency. It is generally agreed, therefore, that there should be formed some body, central bank or otherwise, having sole power to issue bank notes and to serve as the central reservoir for the concentration of bank reserves.

THE ALDRICH BANK PLAN. In January Senator Aldrich, chairman of the National Monetary Commission, announced a tentative plan for the reorganization of the banking and currency systems of the United States. This plan was not the approved plan of the entire commission, but was put forth by the chairman to secure discussion and criticism. A revised plan was submitted by Mr. Aldrich in October. Various suggestions for modification were made by a special committee of the American Bankers' Association and the plan was generally approved by the association at a special meeting at Atlantic City in February, and with only one dissenting voice, at the annual meeting at New Orleans in November. It was also approved by twenty-nine State

banking associations. Hearings were held on this plan by the commission in October at New York and other places. The chief reforms sought by the plan were the mobilization of reserves and the transfer of the note-issuing power from the government to the banks. The first was designed to increase the stability and mobility of banking credit and the second to give such elasticity to the currency as would make it adaptable to the fluctuating business needs of the country. The principal feature of this plan was the provision for the organization of the National Reserve Association. This was to be based on fifteen district reserve associations, each of which in turn was to be based on local associations of ten or more banks. The essential principle of the plan was coöperation among the banks of the United States rather than centralization, though many features of a central bank were incorporated. In the opinion of the formulators of this plan the organization of a central bank, patterned after such banks in Europe or after the Second United States Bank, was not feasible at this time, in view of the existing state of public opinion in this country. Indeed, one of the most ingenious features of the proposed plan is due to the efforts to prevent the control of the reserve association by any local or national political interests, by any corporation or combination of corporations, whether banks or otherwise, or by any combination of interests in Wall Street or elsewhere. It was expected that the plan set forth below would be modified in minor respects in the final report of the Monetary Commission to Congress on January 8, 1912.

ORGANIZATION: LOCAL ASSOCIATIONS. The plan provided for three sets of organizations, each resting on the one below, just as in the organization of our political institutions we have local, State, and national governments. At the bottom will be the *local associations*. These shall have corporate powers; shall be composed of at least ten banks with a combined capitalization, including surplus, of not less than \$5,000,000. All national banks, and all State banks and trust companies complying with certain specified requirements, may become members by buying stock in the National Reserve Association equal to, and not less than nor more than, 20 per cent. of their capital. Such shares shall not be transferable. The requirements for State banks and trust companies are designed to place them on a par with national banks by imposing on them similar conditions as to capital, surplus, reserves, and examination. The original plan limited membership to national banks, but this was strongly objected to on the ground that State banks and trust companies hold more than half the country's banking power. These local associations will choose directors for themselves and for the district associations; have certain functions of supervision of constituents, somewhat as clearing houses examine and tone up business methods of members; and, at times, they will guarantee commercial paper to be rediscounted by the central association. In choosing directors two methods of voting shall be followed: By the first method each bank, regardless of size, shall have one vote, and by the second, each bank shall have as many votes as it has shares in the National Reserve Association. Three-fifths of the directors of the local associations shall be chosen by the first method and two-fifths by

the second. The effect of this method of choosing directors is to give more influence to small banks than their size might otherwise warrant. This effect is designed to be realized throughout the entire organization, since a similar method of voting is followed in choosing the directors of the district and national associations. It is this feature which, added to the fact that each bank is to remain independent and self-directing, led Mr. Aldrich to dub the plan "local self-government in banking."

DISTRICT ASSOCIATIONS. All the local associations shall be grouped into fifteen district associations, the number to be increased from time to time. The directors of these district associations shall be twice as numerous as the number of local associations included in the district. One-half of them shall be chosen by ballot by the boards of directors of the local associations, each board choosing one district director. One-third of them shall be chosen by the second method of voting already described, each bank voting according to its shares in the national association. The remaining one-sixth shall be chosen by these five-sixths, these last not to be bank officers (though they may be bank directors) and to represent the agricultural, commercial, and industrial interests. Each bank shall have a manager and a deputy-manager, appointed by the executive committee of the national association. The functions of the district associations shall be to choose directors for the national association; to facilitate note issues and retirements, and domestic exchanges; to act as the discounting agent of the central body, and otherwise to increase the co-operation between local and national organizations.

NATIONAL RESERVE ASSOCIATION. The board of directors of the National Reserve Association shall number forty-five. Fifteen directors shall be elected by the boards of directors of each district, each choosing one; twelve directors shall be chosen by the representatives of these districts, each representative casting as many votes as all the banks in his district have shares in the national association. These twenty-seven directors shall elect twelve additional members, who shall not be bank officers, but may be bank directors, and who shall fairly represent the industrial (commercial, agricultural, and other interests of the country. The Secretary of the Treasury, the Secretary of Commerce and Labor, the Comptroller of the Currency shall be *ex-officio* members. All the preceding shall choose two deputy-governors, and shall submit a list from which the President of the United States shall appoint the governor of the association. The executive committee shall consist of nine members, including the governor, the two deputy-governors, the Comptroller of the Currency, and five other directors. The governor may be removed by a two-thirds vote of the board of directors for cause; the deputy-governors may be removed by a majority vote of the board for cause at any time. Powers and duties of the National Reserve Association shall be numerous and extensive. It may prescribe the powers and duties of branch officers and establish branches in foreign countries. It shall act as the fiscal agent of the government, receiving all government moneys on deposit without interest and pay all government obligations upon proper orders. It shall have power to buy and sell government and State securities;

the securities of foreign government; gold coin and bullion. It may deal in bills of exchange of certain types both at home and abroad, thus greatly expanding the market for such bills. It may make loans on gold coin and bullion. It shall have power to fix the rate of exchange through its executive committee, this rate to be uniform at all branches. It may discount the notes of depositary banks with the guarantee of the local association, if secured; it may rediscount notes and bills of exchange arising out of commercial transactions with the indorsement of the depositary bank made at least thirty days prior, but the total amount so rediscounted shall in no case exceed the capital of the bank applying, and the aggregate of such notes and bills bearing the signature or indorsement of any one person or firm shall not exceed 10 per cent. of the capital and surplus of the applying bank.

DISCOUNTS. One of the principal means whereby elasticity is introduced into the system is through the foregoing and other rules regarding discounts. The enormous amount of idle money held as reserve by individual banks under the present system will be deposited for the most part with the National Reserve Association, and become available for the rediscounting of notes and bills from member banks, as above indicated. Whenever a local bank rediscounts any security with the central body the proceeds thereof shall count as legal reserve for the local bank. Moreover the notes of the central body sent out to local banks to offset rediscounted securities may also be counted as legal reserve. A comparison of this method with the existing system shows that the discounting capacity of the banks will be very nearly doubled. Individual banks will first be able to discount about as much paper as at present, and then by rediscounting this paper at the central association will be able with this additional credit to discount a large additional sum of bills.

NOTE ISSUES. The plan provides for the limitation of national bank notes to the amounts now outstanding, all additional note issues to be made by the National Reserve Association. In the original plan a progressive tax on all such issues ranging from 3 per cent. on the first hundred million dollars to 6 per cent. on all above three hundred million dollars was provided. In the revised scheme it was provided that all issues in excess of nine hundred million dollars, but under one billion two hundred million dollars, and not covered by an equal amount of legal money on hand, should pay a tax of $1\frac{1}{2}$ per cent. per annum, and all issues in excess of one billion two hundred million dollars should pay 5 per cent. National banks may maintain their present note issues; but whenever a bank retires a part of its notes, it may not reissue them. The national association must offer to buy at not less than par the 2 per cent. bonds held by the national banks to secure their notes; the association must then assume responsibility for the redemption of the notes secured thereby, replacing them with notes of its own. The Secretary of the Treasury shall be required to accept such bonds in exchange for 3 per cent. fifty-year bonds upon which the association shall pay the government an annual tax of $1\frac{1}{2}$ per cent. These bonds will thus cost the government only $1\frac{1}{2}$ per cent. net annually.

After five years not more than fifty million dollars of such bonds may be sold annually, at the discretion of the Secretary of the Treasury. Moreover, the government may at any time retire such bonds or purchase them at par for postal savings banks. The aim of these provisions is to secure the retirement of as much of the present bond-secured circulation of possible. The note issues under this plan would be elastic, since they would be made in consequence of the rediscounting of commercial paper, as already noted.

RESERVE. All demand obligations, including deposits of the government and of member banks and all circulating notes of the association, must be covered to the extent of 50 per cent. by a reserve of gold or of other legal money of the United States. The other 50 per cent. may be covered by the various notes and bills of exchange, which the reserve association is authorized to rediscount. Whenever the reserve of gold and legal money falls below 50 per cent. the National Reserve Association must pay a tax of $1\frac{1}{2}$ per cent. annually for each $2\frac{1}{2}$ per cent or fraction thereof of such deficiency. The notes of the association may be used as legal reserve by member banks, in addition to the gold and legal money now so usable.

PROFITS. The plan provides that the National Reserve Association shall not be run for profit. Thus a dividend of only 4 per cent., but cumulative, shall be paid to stockholders, that is, member banks. Any profit beyond that shall be divided as follows: One-half shall go to the surplus of the association; one-fourth to the United States government, and one-fourth to the stockholders until they shall have received an additional 1 per cent., or 5 per cent. in all. Thereafter the remaining profits, if any, shall be divided equally between the government and the surplus, until the latter equals 20 per cent. of the capital, and thereafter all profits should go to the government. In brief, stockholders may get not more than 5 per cent. per annum, and the government will get all profits above this, when a surplus of 20 per cent. of capital has been accumulated.

OPINION. Opinion was very widely divided as to the advantages and disadvantages of the proposed plan, though the press generally reserved judgment until discussion had illuminated the plan. Thus the formulator of the plan and numerous leading bankers held that the scheme of organization successfully precluded any possibility of control by Wall Street or any other financial or political interest. Leslie M. Shaw, former secretary of the treasury, on the other hand, asked whether "any one is credulous enough to suppose that Wall Street will be unable to control each and all of the fifteen groups." He contended that "the interests" would be able to dictate loans, effect developments in various lines in all parts of the country; and that they could fix the prices of cotton, wheat, and other products; that "it puts business absolutely and irretrievably in the hands of Wall Street." *Moody's Magazine* said: "If such an institution were established it would absolutely control American commerce as well as all our banking and insurance operations. It would be more powerful than the government."

Similarly, although Mr. Aldrich and many others placed great confidence in the provisions for the exercise of control by small banks, others

pointed out that it might be possible by skillfully gerrymandering the districts or by the organization of a few new banks here and there to throw the entire control into the hands of certain designing interests.

While some asserted that the National Reserve Association was a central bank under a different name, others, as Mr. MacVeagh, Secretary of the Treasury, held that the plan answered all objections to a central bank. The secretary stated that it differed from a central bank in not being a competitor of banks and in not being run for profit; it will be an agency of all banks to perform certain necessary functions which the banks in their present disorganized relations cannot perform. So far from favoring centralization he thought the plan would secure democratic monetary control and check the present threatening tendency toward concentration of banking control.

Governor Folk of Missouri would have the directors appointed by the President, instead of by the banks, but ex-Comptroller of the Currency Dawes would have no governmental representation in the directorate, because this might introduce politics into the management.

ADVANTAGES. Among the advantages secured by the plan were mentioned the increased elasticity and control of note issues; the mobilization of bank reserves, and the increased facility with which they may be used for the support of any bank in any part of the country; the uniformity of the rate of discount, and the use of that rate to control the expansion of bank credits, and better supervision of banking practices. Mr. Aldrich contended that the new organization would not be in any way a competitor of existing banks, that the plan would result in a standardization of commercial paper, that greater stability and adjustability could be given to the entire banking and currency systems; that, through the provision of a much wider market for bills of exchange a greater stimulus would be given to domestic commerce; that, through the organization of foreign branches foreign trade would be stimulated and greater influence exerted in the money markets of Europe, and that, through the admission of State banks and trust companies under specified conditions and the authorization of savings departments in national banks with power to make loans on real estate, greater equality would be introduced into the relations of the various kinds of banking institutions. Other advantages mentioned were: Hoarding of millions in the public treasury would cease; the money market would no longer be disturbed by variations in the amount of public money; in times of stress banks will not need to call upon the treasury for aid.

CRITICISMS. Among the criticisms passed in addition to the feeling above noted that the whole banking system of the country might be controlled by selfish interests, the most general criticism was directed toward the method of choosing directors. It was pointed out that the plan will almost certainly place the control of its powerful institution in the hands of bankers. Professor Kemmerer and others held that this association is too important to be thus exclusively controlled by the banking interests, and that provision should be made for a wider representation of agricultural, industrial, and commercial interests and greater responsibility to the public. Some criticism was also directed to

the provisions whereby the notes of the reserve association may be counted as reserve by member banks. It was felt that this would open the way to the evils of inflation. Mr. Aldrich attempted to answer this by saying that it was illogical to allow member banks to count as reserve their credit with the central association and not to allow them to count the notes whereby such credit was discharged. In answer to his view it was stated that a local bank having credit with the central association might demand gold or legal money instead of association notes. The tax of 5 per cent. on note issues in excess of \$1,200,000,000 was not deemed high enough by some, who held that it would often be to the advantage of Western banks to pay this tax since they could receive 6 per cent. or even more on loans and discounts. Much doubt was expressed as to the ability of the reserve association to enforce a uniform discount rate.

BANK MONEY-ORDER SYSTEM. In 1905 the American Bankers' Association appointed a committee to investigate methods of transmitting money from place to place and report a plan for an improved method. The present methods of post office money-order, express company money-order, and bank drafts were not deemed sufficiently elastic and adaptable to meet the real needs of commerce. The committee inquired into methods at home and abroad and reported its plan later in the year. Their aim was to devise a scheme whereby an order issued at one part, however small or remote, would be payable at any other part. Taking the banks as the basis the committee worked out a plan whereby a money-order issued by any bank belonging to the American Bankers' Association might be cashed at any other bank belonging to the same association or at numerous correspondent banks abroad. All such orders would use the same form; these forms would be engraved, signed, distributed, and sponsored by some great bank, just as all travelers' checks of the association are drawn in the Bankers' Interest Company of New York. Being then sold at various parts they would come back to the bank first issuing them for final payment. These money-orders could be so issued as to be cashed in foreign countries, the rate of exchange being specified in the order itself. They would differ from travelers' checks in that they would be issued in any denomination and would require no identification. The charge for orders would be made lower than present charge for post office money-orders.

A metropolitan bank could only be induced to undertake the plan if assured of a considerable volume of business under it. To offset the expense involved the central agent bank would have the use of 2 per cent. interest of the deposits of \$1000 by each of the banks entering the scheme. Moreover, whenever a bank sold an order it would be required to transmit the proceeds to this agent bank, which would enjoy the use of it until the order came back for cancellation.

If adopted it would result in competition with the United States and with express companies, neither of which would at once retire from the field. Since little profit could be expected from the plan at best this competition might prevent its adoption.

GUARANTEE OF DEPOSITS. In 1910 various suits had been begun in the States of Oklahoma,

Kansas, and Nebraska to test the constitutionality of the laws in those States, guaranteeing the deposits of State banks. The Oklahoma and Nebraska laws are compulsory on all State banks, while that of Kansas is optional. In all cases the principal plea against the constitutionality of the laws was based on the fourteenth amendment which prohibits the taking of private property without due process of law. In all of these cases the lower courts had upheld the constitutionality of the laws; and in all cases they had been appealed to the United States Supreme Court where they were decided the first week of January. The principal opinion of the Supreme Court was rendered in the case of the *Noble State Bank v. C. N. Haskell et al.*, which came from the Supreme Court of Oklahoma. This bank had resisted the efforts of the State Bank Board to collect the assessments to provide the guarantee fund. The bank claimed that it was solvent and did not need the aid of the guarantee fund and could not be called upon to aid in securing the depositors of other banks under the fourteenth amendment. The State Supreme Court dismissed the case.

The United States Supreme Court upheld the Oklahoma Court on the ground that the fourteenth amendment cannot wisely be pushed to its logical limit. It held that the decision of the lower court that the assessments were the taking of private property without due compensation was invalid, since the court had already declared that a comparatively insignificant portion of private property for private use is justified when an ulterior public advantage is served. Thereby the protection of bank deposits might, in the opinion of the court, be within the police powers, which extend to all great public needs. The giving of priority of claim to the depositors is similarly justified as incidental to the public safety or welfare which the legislature sought to insure by the guarantee law. Similar grounds were taken in the other cases.

BANKS AND TRUST COMPANIES,
SUSPENSION OF. See FINANCIAL REVIEW.

BANKS, NATIONAL. See NATIONAL BANKS.

BAPTISTS. The total number of Baptists in all branches of the denomination in 1911, according to the figures prepared by Dr. H. K. Carroll and printed in the *Christian Advocate*, was 5,534,565. This gives the Baptists third rank among the religious denominations in the United States, being surpassed only by the Roman Catholics and the Methodists. The same relative rank was held in 1890, when the communicants numbered 3,717,969. According to Dr. Carroll's figures, the regular Baptists, North, numbered 1,211,426; regular Baptists, South, 2,304,724; regular Baptists, colored, 1,799,222. In addition to these larger divisions of the denomination, there are the following smaller branches, with the number of communicants in 1910: Primitive Baptists, 102,311; Seventh Day Baptists, 8119; General Baptists, 33,600; Separate Baptists, 5180; United Baptists, 13,698; Baptist Church of Christ, 6416; Old Two-Seed-in-the-Spirit Predestinarian Baptists, 741; Church of God and Saints of Christ, 1823. The regular Baptists in the United States were divided into the Northern and Southern Baptist conventions in the year 1910-11. These conventions are, in general, bodies formed to associate and combine the different societies of the churches for more economical administration of the work of these bodies. The Northern Baptist conven-

tion held its annual meeting in Philadelphia in June, 1911. The gross budget of the societies making up the Northern Baptist denomination for the year 1910 was 2,240,462. The societies included are the American Baptist Foreign Missionary Society, the Women's Baptist Foreign Missionary Society, the Women's Baptist Foreign Missionary Society of the West, American Baptist Home Mission Society, Women's American Baptist Home Mission Society, and the American Baptist Publication Society. The Southern Baptist Missionary convention held its anniversary at Jacksonville, Fla., beginning May 11, 1911. The societies under the control of this convention include Foreign Mission Board, Home Mission Board, and Sunday School Board.

The Sunday schools under the auspices of the denomination in 1911 numbered 34,302, with 256,605 officers and teachers, and 2,603,387 scholars. There were 49,753 churches and 35,368 ordained ministers. The total value of church property was \$138,675,356. Contributions for home missions amounted to \$835,741; foreign missions, \$1,057,418; Bible and publication work, \$100,883; education, \$411,511; miscellaneous expenses, \$1,700,251, a total of \$25,978,911 contributed for all branches of work.

The denomination maintains missions in nearly all the foreign countries in the world in which Christian missions are carried on, and maintains ten theological seminaries; under its auspices are 93 universities and colleges, with 81 academies, seminaries, institutes, and training schools.

Efforts have been on foot for several years to bring about a union between the Baptist denomination and the Free-Will Baptists. Practical success has now been attained. (See BAPTISTS, FREE.)

Two important gatherings were held by the denomination from June 13 to June 25 in Philadelphia. These were the meeting of the Northern Baptist convention and that of the Baptist World Alliance. The Northern Baptist convention, while it has no legislative power, has succeeded in the last four years in becoming an instrument for the expression of the common feeling and purposes of the churches of the denomination. It is the local instrument for bringing into coöperation the missionary, educational, and philanthropic agencies of the denomination. The Social Service commission of the convention presented a programme of social service which was enthusiastically adopted. This resolution included the following points:

Equal rights and complete justice for all men in all stations of life; the right of workers to some protection against the hardships resulting from swift industrial changes; the principles of conciliation and arbitration in industrial dissensions; the protection of workers from dangerous machinery, occupational diseases, and mining disasters; the abolition of child labor and the protection of children from exploitation in industry and from work that is degrading, dwarfing and morally unwholesome; such regulation of the hours of labor for women as shall safeguard the physical and moral health of the community; the suppression of the sweating system; a gradual and reasonable reduction of the hours of labor to the lowest practicable, and that degree of leisure for all which is a condition of the highest life; a release from employment one day in seven, and a wage based not

on a seven-day week, but on a six-day week; a living wage as the minimum in every industry and the highest wage that the industry can afford; the most equitable distribution of the products of industry that can ultimately be devised; suitable provision for the old age of workers, and for those incapacitated by injury in industry; the control of the natural resources of the earth in the interests of all the people; the gaining of wealth by Christian methods and principles, and the holding of wealth as a social trust; the discouragement of an immoderate desire for wealth and the exaltation of man as the end and standard of industrial activity; and the abatement of poverty.

After the close of the convention, representatives of 8,000,000 Baptists from all over the world met in the gathering of the Baptist World Alliance. The president was Dr. John Clifford of the Baptist church of England. An interesting feature of the meetings was the presence of a large delegation of Baptists from Russia and other parts of eastern Europe. There was reported a great increase in the Baptist influence among these people. The alliance has provided for them a trained and equipped ministry, and steps have been taken for the establishment of a great central European Baptist theological seminary. A movement was started at the meeting of the alliance for the affiliation of Baptist young people of the entire world.

BAPTISTS, FREE, also called **FREE WILL BAPTISTS**. A religious denomination founded by Benjamin Randall in 1780, when a church was established at Durham, N. H., after the founder had left the regular Baptist denomination because of his disbelief in the doctrine of election. The denomination is strongest in New England, but has a considerable strength in the West. According to the religious census of the United States, taken in 1906 and published in 1910, the total number of communicants in that year was 81,359, with 1111 church edifices and 1160 ministers. In 1911 the communicants numbered 70,880, the churches 1112, and the ministers 1186. The denomination has always taken advanced positions on slavery, temperance and Christian unity. In 1911, consequent upon negotiations which had been in progress since 1907, the Free Baptists transferred to the American Baptist Foreign Missionary Society and the American Baptist Home Missionary Society, as their agents for missionary activities, their missionary fields, functions, and funds, and entered upon a movement for union, which it is expected will ultimately result in the complete union of the two denominations. This movement rests upon a platform known as the "basis of union," which formulates no creed, but recognizes the two peoples as "substantially one," and leaves differences "where the New Testament leaves them; to the teachings of the Scriptures under the guidance of the Holy Spirit." The denomination maintains several colleges, among them Bates College at Lewiston, Me.; Rio Grande College at Rio Grande, Ohio; Storer College at Harper's Ferry, W. Va.; and Hillsdale College at Hillsdale, Mich. In connection with the latter institution, a theological seminary is maintained. The official organ of the denomination, *The Morning Star*, founded in 1826, was consolidated with the *Watchman* of Boston, October 1, 1911. Professor Alfred William Anthony, D. D., of Lewiston, Me., formerly of Bates College, is corresponding secretary and

treasurer of the General Conference, and at the same time special joint secretary of the American Baptist Foreign Mission, Home Mission, and Publication societies.

BAPTIST YOUNG PEOPLE'S UNION OF AMERICA. An organization which combines all the young people's societies in Baptist churches in the United States and Canada for the purpose of carrying on educational work and the training of young people for efficiency in Christian work. It was organized in 1891 in Chicago. It has its headquarters in Philadelphia and Chicago. The organization publishes two monthly magazines, *Service* for the senior department, and *Our Junior* for the junior department. These two are now published by the American Baptist Publication Society in Philadelphia. The membership of the union in 1911 was something over 600,000. It is international in its scope, including all the provinces of Canada as well as the United States. The following were the international officers in 1911: President, W. J. Williamson, D. D., St. Louis, Mo.; vice-presidents, George W. Truett, D. D., Dallas, Tex., A. H. Vautier, Philadelphia, Pa., Rev. H. H. Bingham, London, Ont.; general secretary, William B. Chalmers, Philadelphia; recording secretary, Rev. H. W. Reed, Rock Island, Ill.; treasurer, H. D. Osgood, Chicago, Ill. The union holds meetings annually.

BAR ASSOCIATION, AMERICAN. The American Bar Association is an organization which includes in its membership nearly all the leading lawyers of the United States. It was founded in 1878. Its membership is about 5000. Annual meetings are held for the purpose of discussing matters of interest to the profession. The meeting for 1911 was held in Boston on August 30. The retiring president, Edgar H. Farrar, delivered the annual address. He discussed in general the legislation passed by Congress and the different States. His address included a short review of the corporation laws of the country and strong recommendations that they be amended in many important particulars. He denounced the issuance of fictitious or watered stock as the great American national disgrace, declaring that this was made possible by those corporation laws which provided no governmental supervision over the organization of corporations which provided no part of the capital stock to be paid in money, and which permit issuance of stock at the pleasure of the organizers and directors for property, labor, and services, at such valuation as they may choose to place on them.

Committees of the Bar Association are engaged in the study of the forms of judicial procedure and uniform divorce laws.

The officers chosen for 1912 were: President, Stephen S. Gregory, Chicago; secretary, George S. Whitelock, Baltimore; treasurer, Frederick E. Wadhams, Albany, N. Y. The next meeting of the association will be held in August, 1912.

BARBADOS. An island of the West Indies; a British colony. Area, 166 square miles. Population (1901), 195,588; estimated 1909, 194,500. Capital, Bridgetown, with an estimated population (1909) of about 35,000; Speightstown has 1500. Births (1909), 6163; deaths, 4142. Primary schools (1909), 167, with 15,946 pupils. There are secondary schools. Area under sugar-cane (1909), 35,000 acres; yield, about 17,997 hogsheds and 69,036 puncheons of molasses. Cotton acreage (1909), 4121; yield,

818,917 pounds. Sugar mills, 388; rum distilleries, 5. The fishing industry employs 250 boats, and the annual catch is valued at £17,000. Imports (1910-11), £1,345,194; exports, £1,088,830; revenue, £213,297; expenditure £211,949; debt, £422,900. Miles of railway (private), 28. Governor (1911), Sir Leslie Probyn.

BARBUDA. See ANTIGUA.

BARCA. See TRIPOLI.

BARLEY. As reported by the International Institute of Agriculture, the area devoted to barley in 1911 in twenty-one countries adhering to the institute was 98.8 per cent. of the area grown in 1910, and the production was 99.9 per cent. of the crop of the previous year, which amounted to 1,366,719,000 bushels. The production for twenty-nine countries in 1910 was given by the United States Department of Agriculture at 1,377,580,000 bushels. Drought caused a marked reduction in yield in Russia, Rumania, and the United States, amounting to 11.5 per cent., 11.7 per cent., and 7.8 per cent., based on the crops of 1910 for the three countries, respectively. Russia, the leading barley growing country of the world, produced in 1911 426,190,000 bushels in Europe, and 10,775,000 bushels in Asia. The United States ranked next with 160,240,000 bushels, followed by Germany with 149,290,000 bushels; Japan with 94,668,000 bushels; Spain with 89,940,000 bushels; Hungary, including Croatia and Slavonia, 76,115,000 bushels, and Austria with 74,529,000 bushels. A more complete list of countries and their yields is given under AGRICULTURE. The area devoted to barley in the United States in 1911 was 7,627,000 acres. In 1910 this country produced 173,832,000 bushels on 7,743,000 acres. The average yield per acre in 1910 and 1911 was 22.5 and 21 bushels, respectively. The farm value per bushel on December 1, 1911, was 86.9 cents, which is the highest since 1868, when it was \$1.09. The total value of the crop on this basis was \$139,182,000, which is by far the highest total value ever obtained. In 1910 the total value was \$100,426,000, which was exceeded but once, when in 1907 the value reached \$102,290,000. Among thirty-four States reporting barley yields, the leading ones were as follows: California 40,600,000 bushels, Minnesota 28,025,000 bushels, Wisconsin 20,910,000 bushels, North Dakota 20,475,000 bushels, and Iowa 10,950,000 bushels. The highest average acre yield for any State in 1911, 43 bushels, is recorded for Utah. Numerous lines of breeding and other investigational work were carried on with this crop during the past year at home and abroad. Among the results secured in the United States may be mentioned that irrigation experiments in California gave large increases in yield, with relatively small amounts of irrigation water. It was also found in California that plowing twenty inches deep under the average moisture conditions gives a marked increase in yield as compared with shallow plowing. Experiments by the United States Department of Agriculture in bleaching barley with sulphur, showed that the process tended to increase the moisture content and to decrease the weight per bushel slightly, while the germination was very perceptibly reduced.

BARNARD COLLEGE. See COLUMBIA UNIVERSITY.

BAROTSELAND. See RHODESIA.

BARR, CHARLES. A Scotch yachting expert, died January 24, 1911. He was born at Gour-

ock, near Glasgow, in 1864. He was a brother of the late John Barr, who was, in his time, the most successful racing captain of the British Isles and later continued his successes in America. Charles Barr received his first training as a navigator in sailing small craft on an estuary of the Clyde River. In 1887 he went with his brother as one of the crew to sail the *Thistle*, the Scotch challenger for the America's cup. He came to the United States a few years later, bringing over the 40-foot schooner *Minerva*, which he sailed, gaining many victories. He settled at Marblehead, Mass., and became one of the most skillful yachting navigators in American waters. In 1893 he sailed the *Navahoe* in English waters, but she was not a success and he returned to the United States in time to assist his brother who was sailing the *Jubilee* for General Charles J. Paine. In 1899 he was selected to command the *Columbia*, the vessel chosen to defend the America's cup against the *Shamrock I*. In this she was successful and two years later Captain Barr again commanded her. His third series of races for the America's cup was in 1903, when the *Reliance* was built to meet the *Shamrock II*. Captain Barr carried her through the season without a defeat. In 1905 he sailed the *Atlantic* across the ocean in the race for the Kaiser's cup and won. In the summer of 1910 he took the *Westward* across the ocean to Kiel and Cowes. He won every race in which he started except one. Among the yachts that were sailed by Captain Barr were the *Owene*, *Wasp*, *Colonia*, *Mineola*, and the *Crusader II*. These yachts were all successful.

BARRIE, J. M. See LITERATURE, ENGLISH AND AMERICAN.

BASCOM, JOHN. An American educator, died October 3, 1911. He was born at Genoa, N. Y., in 1827 and graduated from Williams College in 1849. He studied theology at the Andover Theological Seminary, graduating in 1855. In the same year he became professor of rhetoric at Williams College, holding this chair until 1874, when he was chosen president of the University of Wisconsin. Here he remained until 1887, when he resigned and was appointed lecturer on sociology in Williams College in the same year. He remained in that chair until 1891, when he was appointed professor of political science. He again served as lecturer on sociology from 1901 to 1903, when he was made professor emeritus of political economy. Dr. Bascom's influence in the upbuilding of the University of Wisconsin was very great. His unusual personality left a strong impress on those with whom he came in contact, both within and without the confines of the college. For many years he lived in semi-retirement at Williams-town, acting as adviser and friend to the students of Williams College. He was the author of *Political Economy* (1859); *Æsthetics* (1862); *Philosophy of Rhetoric* (1865); *Principles of Psychology* (1869); *Ethics* (1879); *Natural Theology* (1880); *Problems in Philosophy* (1885); *Sociology* (1887); *The New Theology* (1891); *Social Theory* (1895); *The Growth of Nationality in the United States* (1889); and *God and his Goodness* (1901).

BASEBALL. The season of 1911 was notable for the interest taken by the public in the world's championship series played between the Philadelphia team, winner of the American

League pennant, and the New York team, winner of the National League pennant. The total attendance at the six games was 179,851, and the receipts aggregated \$342,364.50. The best previous record was in 1909 when 145,807 persons paid \$188,302.50 to witness seven games between the Pittsburgh Nationals and the Detroit Americans.

For the second year in succession the world's championship was won by the Philadelphia Americans, familiarly known as the Athletics, who captured four games of the series, as against two won by the New York Giants. The pitching strength of the Athletics combined with the batting of John F. Baker, their third baseman, who on two critical occasions for his team knocked home runs, accounted for the Athletics' victory. The scores of the games follow: New York 2, Philadelphia 1; Philadelphia 3, New York 1; Philadelphia 3, New York 2; Philadelphia 4, New York 2; New York 4, Philadelphia 3, and Philadelphia 13, New York 2.

The pennant race in the American League started in a fashion to indicate that Detroit, the winner in 1909, would have a walkover. As the season continued, however, the long lead gained in the early weeks by Detroit was overcome, and the Athletics captured the flag with 101 victories and 50 defeats. Detroit finished second with 89 victories and 65 defeats. The standing of the other clubs follows: Cleveland won 80, lost 73; Chicago won 77, lost 74; Boston won 78, lost 75; New York won 76, lost 76; Washington won 64, lost 90; St. Louis won 45, lost 107. The leading pitcher of the league was Charles Bender of the Athletics, and the leading batter was Tyrus Cobb of the Detroit team, who finished the season with the wonderful average of .420.

The race in the National League was much more exciting than the one in the junior organization, the outcome being in doubt until the final weeks of the season, when the Giants forged to the front. The New Yorkers won 99 games and lost 54. Chicago, the 1910 pennant winner, was second with 92 victories and 62 defeats. The standing of the other clubs was: Pittsburgh won 85, lost 69; Philadelphia won 79, lost 73; St. Louis won 75, lost 74; Cincinnati won 70, lost 83; Brooklyn won 64, lost 86; Boston won 44, lost 107. The leading pitcher of the league was Marquard of the Giants, and the leading batter, Wagner of Pittsburgh. After the world's series the Giants visited Cuba, winning 9 out of 12 games with the principal clubs of the island. This was the first team from the States to win a series with the Cubans.

The pennant winners in the more important minor leagues in 1911 were: Eastern League (now International League), Rochester; American Association, Minneapolis; Southern League, New Orleans; Western League, Denver; New York State League, Wilkes-Barre; Connecticut League, Springfield; New England League, Lowell.

Princeton for the second successive year made the best showing of the college baseball teams, winning 18 games and losing 8. Its claim to the championship also was strengthened by its victories in the series with Harvard and Yale.

The scores in Princeton's principal games were: Princeton 5, Yale 2; Princeton 3, Yale 6; Princeton 1, Yale 0; Princeton 5, Harvard 0; Princeton 2, Pennsylvania 7, and Princeton 10, Pennsylvania 8; Princeton 5, Michigan 4;

Princeton 4, Lafayette 2; Princeton 9, Cornell 9; Princeton 3, Cornell 0; Princeton 2, Brown 4; Princeton 6, Brown 2; Princeton 2, Georgetown 2.

Harvard defeated Amherst 9-2, Brown 11-1, Pennsylvania 2-1, Holy Cross 19-5, Williams 5-3, Yale 8-2 and 4-1, and was defeated by Annapolis 4-5, Princeton, 0-5, Holy Cross 1-4, Dartmouth 5-10, and Brown 2-7. Yale's principal victories were over Princeton 6-3, Fordham 7-2, Pennsylvania 2-1, Holy Cross 11-7 and 7-3, Virginia 6-0, and Brown 4-1. Yale lost to Georgetown 2-8, Williams 1-2, Pennsylvania 1-3, Brown 1-5, Amherst 0-2, Cornell 5-7, Princeton 2-5 and 0-1, and Harvard 2-8 and 1-4. Brown won victories over Wesleyan 5-0, Princeton 4-2, Virginia 3-0, Yale 5-1, Pennsylvania 4-2, Michigan 2-1, Amherst 6-0, and Harvard 7-2. Brown was defeated by West Point 6-7, Princeton 2-6, Yale 1-4, Harvard 1-11, and Amherst 1-2. Pennsylvania defeated Annapolis 17-3, Lehigh 3-0, Virginia 8-0 and 10-0, Fordham 5-1, Yale 3-1, Holy Cross 3-1, Princeton 7-2, Dartmouth 10-7, Cornell 8-6, and was defeated by Georgetown 0-2, Yale 1-2, Princeton 8-10, Cornell 1-2, 5-6, and 2-4, Lafayette 0-5, Harvard 1-2, and Holy Cross 0-1.

An important change in the scoring rules was made in 1908 by the National Commission of the two major leagues. This provided that a batter should be credited with a sacrifice hit on a fly to the out field scoring a runner from third base.

BASKETBALL. The Intercollegiate Basketball League which disbanded in 1910 was revived for the 1911 season. Columbia won the championship with 7 victories and 1 defeat. Pennsylvania finished second, winning 5 games and losing 3. The standing of the other teams in the league was: Cornell won 4, lost 4; Yale won 3, lost 5; and Princeton won 1, lost 7. Columbia defeated Cornell 20-16 and 33-17, Princeton 36-13 and 23-12, Yale 25-10 and 20-10, and Pennsylvania 17-15. Columbia's only defeat was at the hands of Pennsylvania, the score being 18-20. Pennsylvania's other victories were over Yale 34-17, Princeton 27-19 and 15-14, and Cornell 34-24. Pennsylvania was defeated by Columbia 15-17, Yale 33-37 and Cornell 14-16. Princeton's single victory was in the second Yale game, in which the latter was defeated 36-32. The total number of points made by each team follows: Columbia 192, Pennsylvania 192, Yale 172, Cornell 165, Princeton 159. The total number of points scored against these teams was: Columbia 113, Pennsylvania 162, Cornell 190, Yale 203, Princeton 212.

The Western Conference championship series of games resulted in a tie for first place between Minnesota and Purdue, each of these teams winning 8 games and losing 4. Chicago finished second with 7 victories and 5 defeats and Illinois third with 6 victories and 5 defeats. The standing of the remaining teams in the league was Indiana won 5, lost 5, Wisconsin won 6, lost 6, Iowa won 2, lost 2, and Northwestern won 1, lost 12. Wesleyan won the New England League championship, being undefeated in four games. Williams was second with an even break. Dartmouth failed to win a game. The championship among the Southern colleges was won by the United States Naval Academy. There were no Amateur Athletic Union championships held in 1911.

BASUTOLAND. A British dependency,

northeast of the Cape of Good Hope province. Capital, Maseru, with 1300 inhabitants (200 Europeans). Area, 10,293 square miles; population (1904), 348,626. Primary schools (1900), 245; secondary, 9 (chiefly normal and industrial); nearly all are mission schools, government-aided. The territory occupies a high plateau, excellently adapted to grain and cattle-raising. The principal crops are corn, wheat, and millet. A good trade is carried on in wool and mohair, and the native-bred mountain ponies are much esteemed. There are no mining industries. Imports 1907, £238,500; 1908, £239,830; 1909, £258,994. Exports 1907, £248,500; 1908, £193,122; 1909, £349,884 (corn, 36,431,400 pounds, valued at £75,201; wheat, 12,511,000 pounds, £48,979; millet, 1,382,400 pounds, £3820; wool, 6,960,600 pounds, £139,022; mohair, 1,455,900 pounds, £49,721). A branch of the South African Railways crosses the border at Maseru. The postal and telegraph service is run in conjunction with the Cape of Good Hope service. A government telephone connects the districts. Revenue 1909-10, £119,974; expenditure, £127,437. There is no debt. Letsie is the paramount chief. The territory is administered by the governor-general for the Union of South Africa, through a resident-commissioner (1911, Sir Herbert Cecil Sloley).

BATCHELLER, IRVING. See LITERATURE, ENGLISH AND AMERICAN.

BATCHELOR, EGBERTON LEE. 'An Australian public official, died October 7, 1911. He was born in Adelaide in 1865 and was educated in the public schools of that city. For a time he taught school, but soon became an apprentice in the Government Locomotive Works, and became active in trade unionism. He was elected to the South Australian Parliament at the general election in 1893 and was chosen leader of the Labor party of the state. From 1899 to 1901 he was minister of education and agriculture, but resigned office to stand for election to the first Federal Parliament, to which he was elected. He was appointed minister for home affairs in 1904, serving from April to August, and minister of external affairs in the first Fisher cabinet, serving from November, 1908, to June, 1909, and in the second Fisher cabinet from April, 1910, until the time of his death.

BATTERIES, ELECTRIC. See ELECTRIC BATTERIES.

BATTERY, EDISON NICKEL IRON. See ELECTRIC BATTERIES.

BATTLE CRUISER. See NAVAL PROGRESS, *Guns and Gunnery*.

BATTLESHIPS. GREAT BRITAIN. At the end of 1911 the British dreadnought *Orion* is the most powerful battleship afloat, ready for service. There are four vessels of her class, *Orion*, *Monarch* (launched March 30, 1911), *Conqueror* (launched May 1, 1911), and the *Thunderer* (launched February 1, 1911.) The principal characteristics of the *Orion* are: Displacement 22,680 tons; length 545 feet; beam 88½ feet; horsepower 27,000; Parsons turbines; four screws; speed 21 knots; 18 Yarrow boilers in three groups, fired by oil fuel as well as coal; total fuel supply, 3700 tons, including 1000 tons of oil; armament, ten 13.5-inch, 45 cal. guns, mounted in five 2-gun turrets, all on the centre line; 20 4-inch; three torpedo tubes, 21-inch; main armor belt 12 inches. Two of the five turrets are mounted on the forecastle, the after

one being raised to permit its guns to be fired over the other. The third is amidships, abaft the superstructure carrying the single tripod mast and pair of funnels. This turret is on the same level as the upper deck and the ends of the superstructure have been cut away to give a maximum arc of train on each beam. Further aft is a raised superstructure carrying some of the four-inch guns of the anti-torpedo armament, a pair of boat cranes, and a second conning tower. The two remaining turrets are superposed, the higher being on a level with the bow turret, with a very wide arc of train. The ten 14-inch guns of the American dreadnoughts *Texas* and *New York* will be mounted on this plan. Although, in theory, two of these turrets can fire over those below them, it is doubtful if they will ever do so in practice, even in the case of the lighter 12-inch turrets of the *Nep-tune*. During the trials of the *Minas Geraes* and the *Neptune*, it was proved that living organisms would not suffer to any great extent from the blast of such firing, but it is doubtful if this would be so with 13.5-inch guns firing instead of 12-inch. This system of mounting ten guns is a great improvement on the two systems hitherto adopted in British dreadnoughts; it is thought to be superior to that adopted for the American vessels of the *Dela-ware* and *Utah* classes, in which two of the turrets are rather cramped. In spite of the increased weight of the heavy armament, and the great increase in length of the *Orion*, the difference in displacement, compared with the *Nep-tune*, is not remarkable. The *Neptune*, with her ten 12-inch guns, has a displacement of 19,900 tons, and a length between perpendiculars of 510 feet; the *Orion* is heavier by 2780 tons, with a length of 545 feet between perpendiculars. The 13.5-inch shell weighs 1250 pounds; the 12-inch shell 850 pounds; while the muzzle energy equals about 70,000 foot-tons, as against the 48,000 foot-tons of the 12-inch. On the *Orion's* trials her big-gun firing was successful, but she considerably damaged her anti-torpedo armament; and a different system of mounting is deemed imperative. On her thirty hours trial at 18,500 horsepower, her engines developed over the indicated power, and she made 19.3 knots. On her eight hours full power trial, it is said that she developed slightly less horsepower and speed than anticipated. It is claimed that there was no vibration at all.

Great Britain's twenty-first dreadnought, the *King George V.*, an improved *Orion*, and the seventh ship to carry 13.5-inch guns, was launched on October 9, 1911; she is the first vessel of the 1910-11 programme to take the water. In essentials, she is a sister ship of the *Orion*, but about fifteen feet longer, and displacing about 1500 tons more. Her anti-torpedo guns will be behind armor.

The British battle cruiser *Lion*, 26,350 tons, is under trial; and her sister ship, the *Princess Royal*, was launched on April 29, 1911; and the *Queen Mary*, 26,850 tons, is building. These ships will each carry eight 13.5-inch guns in four centre-line 9-inch turrets, the second from forward being superposed; the anti-torpedo armament is sixteen 4-inch guns. The *Princess Royal* is 700 feet long over all, with a beam of 88½ feet; draft 27½ feet; Parsons turbines, 70,000-horsepower; speed twenty-eight knots; to be completed by March 31, 1912.

AUSTRALIA. The present Commonwealth pro-

gramme is to provide the unit agreed upon at the Defense Congress of 1909, one armored cruiser, the *Australia* (*Indefatigable* class), three protected cruisers of an improved *Bristol* type, six destroyers of the river class, and three submarines. The contracts for an armored cruiser, two protected cruisers, and two submarines have been placed in Great Britain, and contracts have been concluded with the government of New South Wales for the construction at Sydney of one protected cruiser, to be named the *Brisbane*, and three destroyers. The unit will be completed in 1912-13. The *Australia* is due for commission in September, 1912. The *Sydney* and *Melbourne* will be completed in August, 1912. Displacement 5400 tons; horsepower 25,000; speed 25½ knots; armament, eight 6-inch guns; two torpedo tubes.

NEW ZEALAND. The first warship given to the imperial navy by any of the oversea dominions, the *New Zealand*, launched July 1, 1911, is a sister ship of the *Australia* (*Indefatigable* class) which John Brown & Co. are building for the Australian government. The *New Zealand* is due for commission in September, 1912.

GERMANY. By the commissioning in August of the *Helgoland*, Germany now possesses seven dreadnoughts. The *Helgoland* class (*Helgoland*, *Ostfriesland*, *Thüringen*, and the unfinished *Oldenburg*) has a displacement of 22,800 tons; length 546 feet; beam 93½ feet; draft 28 feet, 10¾ inches; triple expansion reciprocating engines; designed speed 20.5 knots; speed attained 22 knots; armament twelve 12-inch fourteen 5.9-inch, and fourteen 3.4-inch guns. The heavy guns are mounted in six 2-gun turrets, one on the centre line forward, one on the centre line aft, and four in broadside; therefore only eight guns bear abeam. This arrangement was also adopted in the older *Rheinland*, *Posen*, *Nassau*, and *Westfalen*, each armed with twelve 11-inch guns. Although the *Helgoland* class carries as many heavy guns as the American *Wyoming*, the latter is 50 per cent. superior on the broadside.

The German battle cruiser *Moltke*, 23,000 tons, designed speed 25.5 knots, 50,000-horsepower, has held her trials, making 29½ knots, with Parsons turbines. She is an improved *Von der Tann* (19,000 tons, eight 11-inch guns in four 2-gun turrets, two on the centre line and two in echelon). Her armament is ten 11-inch, twelve 5.9-inch, and twelve 3.4-inch guns, the arrangement being generally the same as in the *Von der Tann*, with an additional turret superposed forward of the aftermast. Length 613 feet; beam 96 feet, 9 inches; draft 27 feet; four torpedo tubes; normal coal supply 1000 tons; total supply 3100 tons. The disposition is almost the same as in the British *Hercules* and *Colossus*, six guns bearing ahead, eight astern, and ten on either beam. The *Goeben*, sister ship of the *Moltke*, was launched on March 28, 1911.

UNITED STATES. The 21,825-ton, 20¾-knot dreadnoughts, *Florida* and *Utah*, have been completed and are in commission; they are in essentials sister ships to the *Delaware* and *North Dakota*, each carrying ten 12-inch guns in five turrets on the centre line. The *Wyoming* and *Arkansas*, full-load displacement 27,243 tons, are over three-quarters completed. Their characteristics are: Length 562 over all; 554 between perpendiculars; beam 93 feet, 2½ inches, on load water line; mean draft 28 feet, 6 inches;

normal displacement with two-thirds supply of fuel and stores, and full supply of ammunition, 26,000 tons; estimated trial displacement, 26,000 tons; Parsons turbines, four shafts; estimated 28,000 shaft horsepower, giving 20½ knots; bunker capacity of 2500 tons, with 400 tons of oil fuel in addition; boilers, Babcock and Wilcox water tube type. The armament consists of twelve 12-inch guns, in six 2-gun turrets on the centre line; and twenty-one 5-inch anti-torpedo guns; four 3-pounders, two 1-pounders, semi-automatic guns; two 3-inch field pieces and two 30-calibre machine guns; two 21-inch submerged torpedo tubes.

The battleships *New York* and *Texas* (normal displacement 27,000 tons) will be the first ships to mount the new 14-inch guns, each ship carrying ten in five 2-gun turrets on the centre line. The *New York* is almost one-quarter, and the *Texas*, almost one-half completed. The *Nevada* and *Oklahoma*, authorized, will each carry ten 14-inch guns in four turrets, on the centre line, two triple-gun and two 2-gun turrets. The front plates of the two 3-gun turrets will be eighteen inches thick and, as far as is known, the heaviest armor plate afloat. The front plates of the two 2-gun turrets will be sixteen inches thick. The side armor will be thirteen inches thick, as compared with eleven inches on the *New York* and *Texas*. They will each have only one smoke pipe; and will be oil burners.

FRANCE. The 23,500-ton battleships *Jean Bart* and *Courbet* were launched on September 22, 1911, and September 23, 1911, respectively. Each carries twelve 12-inch 45-calibre guns, in six 2-gun turrets, four on the centre line (the two inside ones being superposed), and two in broadsides. Main armor belt 10.7 inches; speed 21 knots. Their sister ships, *France* and *Paris*, have been commenced.

JAPAN. The 20,800-ton dreadnoughts *Kawachi* and *Settsu* were launched on October 15, 1910, and March 30, 1911, respectively. They are armed with twelve 12-inch guns in six 2-gun turrets, arranged as in the German *Helgoland*. A new battleship is building at Kure, rumored to have a displacement of over 25,000 tons, and to carry twelve 13.5-inch guns. A turbine-driven battle cruiser, *Kongo*, 27,500 tons, is building at Barrow. Three others of the same class are building in Japan; the *Kirishima* at the Mitsubishi yard at Nagasaki; the *Haruna* at the Kawasaki yard, Kobe; and the *Hiei* at the Yokosuka yard. Their armament is a secret.

ITALY. The *Conte di Cavour*, 22,000 tons, Italy's second dreadnought, was launched on August 10, 1911. In design she is unique, carrying thirteen 12-inch guns. Her big guns are mounted in five turrets of which two are raised to fire over the forward and after ones respectively, and the fifth is amidships between the masts. The three lower turrets are triple-gun turrets; and the raised ones twin-gun turrets. All guns can be trained on either beam; and fire axially ahead or astern, giving a broadside of 11,050 pounds and 4250 pounds, ahead and astern. The anti-torpedo battery is carried along the upper deck, and consists of eighteen 4.7-inch guns; while a tertiary armament of fourteen 14-pounders is distributed over the superstructures and turret tops. An original method of spacing the 4.7-inch guns has been adopted to provide for a heavy end-on fire. The ship's side is deeply recessed in a series of steps for-



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UNITED STATES BATTLESHIP "FLORIDA"
A DREADNOUGHT OF 21,825 TONS PUT INTO COMMISSION 1911

ward and abaft the two centre 4.7-inch ports, so as to permit the mounting of four guns forward and three aft per broadside. The armor protection is light for a ship of her size; her waterline belt is probably like that of the *Dante Alighieri*, 10-inch amidships with 6-inch forward and 4-inch aft; speed 22½ knots; 24,000-horsepower; turbines. British "Bullivant" torpedo nets will be stowed along the battery deck. Her sisters, the *Leonardo da Vinci* and the *Giulio Cesare*, were launched October 14, 1911, and October 15, 1911, respectively. All these ships are to be completed by 1913. On paper, the *Cavour* is, with the exception of the British *Orion*, the most powerful ship afloat.

RUSSIA. The 23,000-ton battleship *Sevastopol* (launched June 29), the *Poltava* (launched July 10), the *Petrovsk* (launched September 9), and the *Gangut* (launched October 7), have these characteristics: Length 590½ feet; beam 87 feet; draft 27 feet, 3 inches; engines 42,000-horsepower; speed 23 knots. Total coal capacity 3000 tons; capacity of liquid fuel 1170 tons; 4 screw turbines; 25 modified Yarrow boilers. Armament: Twelve 12-inch guns in 4 triple-gun turrets, and sixteen 4.7-inch.

AUSTRIA. The Austrian dreadnought *Viribus Unitis*, the first of a group of four of 20,000 tons each, was launched on June 24, 1911. She is 493 feet long; 91 feet beam; draft 27 feet; 3 sets of turbines aggregating 26,000 horsepower, designed to give 21 knots. The armament consists of twelve 12-inch guns in four centre-line, triple-gun turrets, two being superposed, so that six guns bear ahead and astern; twelve 6-inch, and eighteen 3.4-inch guns, and five 18-inch torpedo tubes are also to be mounted. The maximum thickness of the armor belt is 12 inches, and the total weight of armor carried is said to be 6000 tons.

ARGENTINE REPUBLIC. The Argentine Republic dreadnoughts, of 23,000 tons each, the *Rivadavia* and the *Moreno*, were launched on August 26, 1911, and September 23, 1911, respectively. The principal characteristics are: Length 585 feet over all; beam 98 feet; normal draft 27 feet; 40,000-horsepower; speed 22½ knots; steaming radius at 15 knots, 7000 miles, or 11,000 miles at 11 knots. Armament: Twelve 12-inch, 50-calibre, twelve 6-inch, and twelve 4-inch guns. The heavy guns are in six 2-gun turrets, four in the centre line and two in echelon.

See NAVAL PROGRESS, *Guns and Gunnery and Propulsion*.

BAUER, HAROLD. See MUSIC.

BAVARIA. See GERMANY.

BEAUX-ARTS ARCHITECTS. An association of American graduates of the *Ecole des Beaux Arts*, Paris. The system of educational work originated by the society in 1902 includes the establishment in different cities of the United States of ateliers, or schools in which instruction on architecture may be obtained. The instruction is based on that given in the *Ecole des Beaux Arts*, and many colleges and universities throughout the country avail themselves of the programme of the society used in its courses of instruction. In each city the ateliers are formed by a group of students who desire to carry on the study of architecture. A master or patron, whose work is given free, is chosen or appointed, and the atelier is supported by contributions from the students. Each year the committee on education of the society issues

a certain number of programmes which include problems to be worked out by the different ateliers. These competitions are designated "Class A" and "Class B" competitions.

During 1910-11 approximately 16,500 programmes were issued by the chairmen in the thirty-three regular competitions and the three special prize competitions conducted under the auspices of the society. These programmes were distributed in forty-five different cities in the United States and Canada. The committee passed judgment on 2356 sets of drawings and sketches submitted by students for exhibition and judgment. The society awards four prizes: The Warren Prize, offered for general excellence in planning a group of buildings; the Pupin Prize, the gift of Professor M. I. Pupin of Columbia University, offered for decorative treatment of some scientific appliance; the Goelet Prize, the gift of Mr. Robert W. Goelet, for excellence in planning a city block; and the Bacon Prize, gift of Mr. Robert Bacon, for the greatest number of honors obtained in Class A. Mr. Bacon also offers annually a Paris prize. The winner of this prize is chosen to pursue his studies in the first class in the *Ecole des Beaux Arts*, Paris, according to the regulations to this end adopted by the French minister of public instruction and fine arts. The winner of this prize receives \$250 quarterly for two years and a half, dating from his departure for Europe. The Warren Prize in 1911 was awarded to C. S. Pierpont, the Pupin Prize to J. M. Arellano, and the Bacon Prize to W. F. Burkhart, Jr.

BEAUX-ARTS SALON. See PAINTING.

BECHUANALAND. See CAPE OF GOOD HOPE PROVINCE.

BECHUANALAND PROTECTORATE. A British South African possession extending from the Malopo to the Zambesi rivers and from the Transvaal to German Southwest Africa. Area about 275,000 square miles; population (census of May 2, 1911), 125,350, of whom 1692 were whites. Serowe (17,000 inhabitants) is the capital of the Bamangwato tribe, under Khama, the native chief. The Bakhatla, Bakwena, Bangwaketse, and other tribes have their own chiefs. There are government-aided schools. The chief industries are the raising of cattle (323,911 in 1911) and agriculture. Imports (1909), £96,096; exports, £123,627 (not including the proceeds from the sale of 1900 head of cattle, about £8000.) Exports of raw gold, £55,619. The railway and telegraph lines from the Cape of Good Hope to Rhodesia traverse the protectorate. Post offices, 16. Revenue (1910-11), £52,067; expenditure, £64,791; grant-in-aid, £20,000. The tribal chiefs are directed by a resident-commissioner (1911, Lieut.-Col. F. W. Panzera), residing at Mafeking and acting under the governor-general for the Union of South Africa.

BECK, CARL. An American surgeon, died June 8, 1911. He was born at Neckargemünd, Germany, in 1856, and was educated at the Gymnasium and University of Heidelberg. He studied medicine at the University of Jena. In 1882 he removed to the United States and soon became prominent as a surgeon, and from 1886 to the time of his death was visiting surgeon at St. Mark's Hospital, of which he was president. He was also surgeon at the German Poliklinik and at the German Hospital, and professor of surgery at the New York Post Graduate Medi-

cal School. He was a member of several medical societies. He was the author of a number of books on surgical subjects, both in English and German. Among these are: *A Manual on Surgical Asepsis* (1895); *Text Book on Fractures* (1900); *Roentgen Ray Diagnosis and Therapy* (1904); *Surgical Diseases of the Chest* (1907). He was also author of a book of travels entitled *Glimpses from Latin America* (1908) and a novel in German, *Der Schwederkonrad*.

BEEF TRUST. See TRUSTS.

BEER. CONSUMPTION OF. See LIQUORS.

BEEF SUGAR. See SUGAR.

BEGAS, REINHOLD. A German sculptor, died August 10, 1911. He was born in Berlin in 1831, the son of an artist. From 1846 to 1851 he studied sculpture and in the latter year began teaching at Weimar. Two years later he was entrusted with the execution of the Schiller monument in Berlin. From that time onward for many years he developed an increasing reputation as a national decorator and was at his best when the foundation of the empire began to provide scope for the commemoration of imperial heroes. His work is everywhere seen in Berlin and in Potsdam. He was the creator of the national memorial to Emperor William I., near the royal castle in Berlin; of the Bismarck memorial in front of the Reichstag; of several of the statues in the Siegesallee; of the Humboldt memorial outside of the Berlin University buildings, and of the marble sarcophagi of Emperor and Empress Frederick in the mausoleum of Potsdam. He was directly or indirectly responsible for more German monuments than any man of his own or any other time.

BELGIAN CONGO. See CONGO, BELGIAN.

BELGIAN EXPOSITION. See EXHIBITION.

BELGIUM. A constitutional monarchy of western Europe. Capital, Brussels.

AREA AND POPULATION. The area is officially given at 29,455 square kilometers (11,373 square miles). Population (1900), 6,693,548; estimated December 31, 1910, 7,516,730. Marriages in 1909, 57,126; divorces, 1039; living births, 176,431; still-births, 8269; deaths, 117,571. Immigrants (1909), 39,488 (16,090 from France, 8329 from Germany, 7133 from Holland); emigrants, 35,190 (20,025 into France, 4850 into Holland, 4432 into Germany). Population of Brussels (estimate December 31, 1910), 655,806 (with suburbs); Antwerp (exclusive of suburbs), 320,640; Liège, 174,768; Ghent, 185,149.

EDUCATION. The primary schools under state inspection numbered, in 1909, 7435 (9.98 per 10,000 inhabitants), attended by 923,386 pupils (12.39 per 100 inhabitants); teachers, 8868. Infant schools, 3050 with 268,803 pupils; adult schools (state), 4628 with 233,870; state normal schools, 54, with 4548. Amount expended on foregoing schools in 1908, 51,713,876 francs. Number of students admitted to state normal schools in 1909-10, 219. Number of students in the various state, communal, and provincial establishments for secondary education in 1909, 35,436.

The universities had (1909-10) 7625 students, as follows: Ghent, 1136; Liège, 2743; Brussels, 1236; Louvain, 2510; these figures include technical and special students. While Roman Catholicism is the state religion, entire religious liberty prevails.

AGRICULTURE. The annual agricultural census shows the area (in hectares) sown to principal

crops, the total production in metric quintals, the average production per hectare in 1909, and the total production in 1908, to have been as follows:

Crops	Ha.	Qs.	Av.	Qs. 1908
Oats	250,226	6,274,998	25.07	6,249,976
Rye	257,642	5,881,388	22.84	5,638,947
Wheat	157,765	3,974,430	25.19	3,644,904
Barley	35,404	995,909	26.03	959,922
Beets a	66,669	36,508,783	547.61	37,990,040
Beets b	58,439	15,896,662	272.02	15,599,387
Potatoes	140,163	24,591,706	175.45	22,547,030
Hay, etc.	384,981	17,429,346	.....	.....

a For forage. b For sugar.

The number of horses employed for agricultural purposes was on December 31, 1908, 255,229; cattle, 1,856,833; swine, 1,116,500.

The state forests cover 25,309.74 hectares; communal, 149,671.69; public, 4,808.08; private, 309,633.91; a total of 489,423.42 hectares. The forest products are valued at about 21,653,000 francs per annum.

MINING AND METALS. The table below gives the product of the mines, furnaces, etc., in metric tons, with the value in thousands of francs, for 1909; and the value (in 1000 fr.) for 1908.

	Tons	1000 fr.	1908
Coal	23,517,550	337,906	380,579
Iron ore	199,710	1,056	993
Quarried prods .....	.....	59,885	62,875
Pig iron	1,616,370	100,582	85,883
Manufactured iron	316,990	45,653	41,584
Steel ingots	1,580,350	128,950	107,095
Steel blooms, etc.	866,080	77,398	59,209
Manufactured steel	1,264,650	157,457	137,835
Zinc ingots	174,490	95,336	80,383
Pig-lead	40,306	13,308	12,121
Silver*	271,270†	26,768	23,349

* From lead. † Kilograms.

The coal mines in operation in 1909 (130) employed 143,051 persons; the metallic mines, 708; quarries (1570), 35,482; blast furnaces, 3874; iron works, 977; steel works, 15,990; zinc works, 7378; lead works, 1861.

OTHER INDUSTRIES. There were, in 1909, 95 sugar mills (production, 239,370 tons) and 22 refineries (110,432 tons); 131 distilleries (output, 69,704 kiloliters of alcohol at 50° G.-L.; 3379 breweries (approximate output, 1,535,375 kiloliters). The fishing vessels (1909) numbered 464 (tonnage, 8434), and the catch was valued at 6,203,810 francs.

COMMERCE. The trade, special and transit, is shown in the following table in thousands of francs:

	1908	1909	1910
Imports	2,327,433	3,704,316	4,264,961
Exports	2,506,444	2,809,723	3,407,428
Transit	2,021,035	2,290,865	2,287,212

The table below shows the value of the principal articles of special trade in thousands of francs for the year 1910:

Imports	1000 fr.	Exports	1000 fr.
Cereals, etc.	582,666	Wool a	436,450
Wool and woolens*	442,139	Iron and steel ..	224,287
Minerals†	197,462	Machinery, etc. ..	180,762
Seeds	171,178	Cereals	163,170
Timber	150,494	Flax, raw	131,136
		Veg. fibre c.	113,439

Imports (cont.)	1000 fr.	Exports (cont.)	1000 fr.
Cotton, etc†† ..	148,489	Seeds	111,609
Flax, etc.†	143,034	Diamonds, cut..	99,057
Hides, raw	139,296	Zinc	91,960
Coal	107,478	Hides, raw.....	91,441
Diamonds, rough	98,447	Coal	88,636
Resins, etc.....	96,301	Paints, etc.....	85,087
Iron ore, etc.....	92,520	Glass and glassware ...	84,496
Machinery	80,458	Cotton mfrs....	78,478
Dyes, etc.....	68,213	Resins, etc.....	63,010
Coffee	63,699	Manures	50,277
Live animals... 53,334		Sugar b	45,151
Tallow, etc.....	47,452	Live animals... 42,647	
Wine	47,259	Tallow, etc.....	41,956
Fish	25,998	Veg. oils	39,195
Meats	24,782	Paper, etc.....	34,653
Copper and nickel	24,317	Salts of soda... 30,488	
Hemp and tow. 23,402		Coke	26,405
Butter	17,174	Arms	25,143
Manure	16,861	Stone	22,291
Silk mfrs..... 14,226		Meats	15,343
		Butter	4,823
Total	4,264,961	Total	3,407,428

* Raw material, 419,360,000 francs. † Raw (not including coal and iron). †† Raw, 97,495,000 francs. ‡ Raw, 105,281,000 francs.

a Raw, 366,907,000 francs; yarn, 57,112,000; mfrs., 12,431,000. b Raw, 32,858,000 francs; refined, 12,293,000. c Yarn and manufactures.

Belgium is the third most important wheat importer in the world, ranking after Great Britain and Germany. In 1910 the wheat import amounted to 73,631,037 bushels (of 60 pounds); flour, 29,311 barrels (of 196 pounds). Her wheat production ranges from thirteen thousand to fifteen thousand bushels; and her export trade is growing, amounting in 1910 to 22,897,877 bushels of wheat and 701,563 barrels of flour.

The principal countries of origin and destination are given below for 1909 and 1910 in millions of francs:

Imports	1909	1910	Exports	1909	1910
France	563.0	747.2	Germany	729.9	881.4
Germany	494.9	576.1	France	498.5	669.1
Gr. Brit.....	457.2	516.8	Gr. Brit.....	409.2	457.6
Russia	326.2	364.1	Netherlands	327.9	327.9
Netherlands ..	282.6	293.1	Argentina	90.2	128.6
Argentina	320.2	278.1	U. S.....	107.1	117.1
U. S.....	277.3	231.2	Italy	60.3	72.4
Australia	117.5	210.8	Russia	40.9	67.0
Rumania	112.6	204.6	Brazil	59.5	59.5
British India..	167.7	188.4	Spain	34.5	39.2
Belg. Congo ..	62.1	78.7	Turkey	28.6	35.7
Chile	56.0	63.1	Brit. India..	35.2	32.0

Vessels entered (1910), 10,943, of 15,101,171 tons; cleared, 10,929, of 15,074,061. The merchant marine (December 31, 1909) included 97 steamers, of 184,261 tons; and four sailing vessels, of 3183.

COMMUNICATIONS. Total length of railways in operation in 1910, 4664 kilometers, mostly state. Gross receipts for 1909: State, 281,532,167 francs; private, 29,501,540. Expenditure, 190,540,123 and 12,923,238 francs. About 233 miles were added to the light railway systems of Belgium during the year 1911. Length of public roads, 6270 miles; navigable rivers and canals, 1360. Length of telegraph lines (1910), 7880 kilometers. Telephone wires (1909), 222,499 kilometers. Cost of operation (telegraph and telephone systems) for 1909, 13,431,132 francs; receipts, 16,290,950. Post offices (December 31, 1909), 1519. Postal rev. for the year, 37,481,624 francs; expend., 17,985,379.

FINANCE. The unit of value is the franc, worth 19.3 cents. The revenue and expenditure for successive years are shown in the following table (in 1000 francs):

	1907	1908	1909	1911*
Revenue ord....	617,808	616,986	645,107	658,725
" spec.....	90,451†	82,434†	1,052‡	.....
Total	708,259	699,420	646,159	.....
Expend. ord....	615,237	613,021	634,456	664,348
spec.....	152,536	157,430	151,747	.....
Total	767,773	770,451	786,203	.....

* Estimate. † Including amounts realized from loans: 1907, 88,985,000 francs; 1908, 81,605,000 francs. ‡ Exclusive of amounts realized from loans.

The 1911 budget estimate is detailed below:

Revenue	1000 fr.	Expenditure.	1000 fr.
Railways	296,200	Rys., posts, tels..	237,354
Licences	79,751	Public debt	193,251
Registration, etc.	74,703	War	59,935
Direct taxes....	70,768	Arts, etc.....	37,128
Customs	55,728	Justice	30,288
Posts, tels., etc.	47,235	Agriculture, etc..	29,372
Domains, etc....	24,888	Ind. and labor...	23,686
Repayments	8,151	Finance	22,946
Various	1,301	Other	30,388

The public debt stood, January 1, 1911, at 3,703,403,693 francs (share of the Netherlands debt at 2½ per cent., 219,959,632 francs; loans at 3 per cent., 3,483,444,061).

ARMY. During 1911 the reorganization on the basis of the law which went into effect on December 14, 1909, requiring personal service was still in progress. Such a step was rendered necessary as under former conditions it was impossible to realize either the peace strength or the war reserve. The establishment called for 42,800 men on a peace basis, and 180,000 on a war footing, this being secured by a liability for service, which, except in the exempt classes, demanded one son in each family. The required service was fifteen months for the infantry, fortress artillery, and engineers, two years in the cavalry and horse artillery, twenty-one months in the field artillery, and twelve and one-half months in the administrative service. Total service for each soldier, which included later trainings, was to be twenty months in the infantry, thirty-six months in the horse artillery and cavalry, twenty-eight months in the field artillery and army-service corps, twenty-two months in the fortress and special artillery companies, and twenty-four months in the administrative service. The minister of war reported that on May 31, 1911, both the peace and the war strength required had been attained, and that with thirteen classes of the militia there was available a total strength of 178,436, and including officers and gendarmes 186,846.

The reorganization of the artillery contemplated under the rules effective October 1, 1910, had taken place, and the field artillery was organized into four brigades each of two regiments of six field batteries, while a reserve of twelve field batteries and ammunition columns was formed. There were also four horse batteries.

The organization of the active army, exclusive of the artillery just described, includes for the cavalry two regiments of chasseurs, two

of guides, four of lancers, each composed of four active squadrons, and one in reserve. In addition, there were the mounted troops of the gendarmerie, about 1700 men. The engineer troops comprised one regiment of three battalions, a reserve battalion, and five companies of technical troops. The infantry included fourteen regiments of the line, and one regiment of grenadiers organized into four battalions of four companies each, three battalions for active, and one a reserve battalion. There were further a regiment of carabineers of six battalions, four active and two reserve, and three regiments of chasseurs-à-pied. To the military forces can be added the civil or national guard, which comprised 45,000 men "active," and 100,000 non-active, in times of peace under the control of the minister of the interior.

The war budget for 1912 amounted to 64,843,940 francs, an increase of 4,908,500 francs over the budget of 1911. The effective force provided for in the 1912 budget was 3540 officers, 41,020 men and 2061 civil employees, and included 10,200 horses, 2043 of which were officers', and 8157 for the troops. The budget for the gendarmerie for 1912 was 10,330,820 francs, an increase of 1,171,360 francs. The effective force provided for in this budget consisted of thirteen companies made up of seventy-nine officers and 3648 men, of whom 1745 were mounted. The budget provided further 3,000,000 francs for the armament of the new works at Antwerp, and 2,000,000 for rapid-fire guns for six batteries essential to the defense of that city.

GOVERNMENT. The king in 1911 was Albert, born 1875, a son of the late Prince Philippe de Saxe-Coburg and Gotha and of Flanders; married (1900) to Princess Elizabeth of Bavaria; succeeded his uncle, Leopold II., December 17, 1909. Heir-apparent, Prince Leopold, born November 3, 1901. The ministry, as constituted July 13, 1911, was made up of the following members: Premier and Minister of Railways, Posts, and Telegraphs, Charles (Baron) de Broqueville; Justice, H. Carton de Wiart; Foreign Affairs, J. Davignon; Interior, Paul Berruyer; Arts and Sciences, P. Poulet; Finance, M. Levie; Agriculture and Public Works, A. van de Vyvere; Industry and Labor, Armand Hubert; War, Lieut.-Gen. J. Hellebaut; Colonies, J. Renkin.

HISTORY

THE QUESTION OF ELECTORAL REFORM. Early in the year the subject of electoral reform was discussed in the Chamber. There is no unity in the Belgian electoral system, for while proportional representation has been employed in the legislative elections for the past ten years, the system of absolute majorities still continues in the communal elections, and the plural vote still prevails. The Catholic party, profiting by the present inconsistent system, has tried to put off reform. A measure of reform which applied the same principle to provincial and communal elections as was already observed in the parliamentary elections, had been submitted by a parliamentary commission. The Liberals and Socialists wished the measure carried at once in order that it might be applied in the October elections. But the ministry demanded that other matters be considered first and put off the electoral measure until it was too late. The Liberals and Socialists threatened the Catholics with an

alliance as the result of which the Catholics would be excluded from those communes in which the Socialists and Liberals taken together had an absolute majority. The antagonism between the latter parties had hitherto prevented such an alliance, but the hostility of both to the government's educational bill (see following paragraph) drew them together, and in a public demonstration on August 15, the complete union of the two parties on a definite programme was proclaimed. The Liberal-Socialist proposal was to unite in all the large cities, and thus gaining an absolute majority, to exclude the Catholics altogether from the communal governments. The municipal elections took place on October 15. The Liberal-Socialists made considerable gains. In Brussels all the Liberal-Socialist candidates were elected, and they were generally successful also in the suburbs of Brussels and in several large cities.

THE SCHOOL QUESTION. On March 14 the government presented a measure concerning schools which indirectly required the provincial and communal administrations to subsidize the Catholic schools. The opposition of the Liberal and Socialist groups was exceedingly bitter and was intensified by the exceptional measures which the government took in its endeavor to push the measure through the Chamber. The government's course alienated some of its own supporters. After debating the question for several weeks matters were still at the same point. All other parliamentary legislation was suspended and the month of June was reached without even any discussion of the budget. At this juncture the king intervened and advised M. Schollaert, the premier, to consent to the postponement of the school question as the only means of carrying through the necessary financial legislation. M. Schollaert was too deeply committed to this school policy to continue in the government and he gave in his resignation. A new ministry was formed under Baron de Broqueville, the former minister of railways, who held the same portfolio. In the middle of August the premier announced that owing to the opposition to the school bill the government would consider another plan. Mass meetings and processions, attended, it was said, by 150,000 people, were held in Brussels by the Liberals and Socialists as a protest against the government's educational policy. The alliance between these parties was publicly celebrated, and the two flags, the blue for the Liberals, and the red for the Socialists, were carried together through the streets. The programme of the allied parties was summed up in the formula, "One man, one vote, and compulsory education." They swore to continue the struggle until the school bill was finally withdrawn and until universal suffrage was obtained. The Catholic party replied with a counter-demonstration at Louvain, at which M. Schollaert received a popular ovation. The government adhered to its school policy which it planned to carry through at the earliest opportunity, though it was expected that very serious modifications might be required if it remained the government platform in the next general election.

THE QUESTION OF NATIONAL DEFENSE. The alarming rumors circulated throughout Europe as to the relations of France and Germany in the affair with Morocco led to much discussion in Belgium of the means of defense if war should break out between France and Germany. It

was generally recognized that the Belgian army would be incapable of offering a serious resistance to any invader who violated the neutrality of Belgian territory. Although the recent military law had increased the annual enrollment in the army and would eventually result in a considerable strengthening of the war effective, this did not seem sufficient, and the Liberals and Progressists were vigorously opposed to increased expenses involved in any extensive military improvement. They contended that the only means of securing national defense without laying the country under a crushing burden was to substitute a militia for the permanent army. They declared that that was the only means of drawing out the full strength of the country in a moment of danger. Under that system the entire nation would virtually be in arms in the event of a crisis. Such a plan, however, was most objectionable to the government. The minister of war had frequently declared that no soldier was properly trained who had not spent at least fifteen months in the barracks. On the other hand, the majority in Parliament would not consent to increase the number of recruits who had to undergo that long period of training. In August the government effected certain military improvements on the German frontier. The discussion of the subject revealed the general opinion that the Belgian army was not large enough to defend the frontier and, in the event of war, would have to fall back upon the fortified position of Antwerp, leaving the rest of the country exposed to the invader. Although the line of the Meuse had been recently fortified, this did not extend far enough to prevent the war from being waged in the interior of the country.

In reply to the interpellation by a Socialist deputy complaining that the military authorities had taken no adequate measures for defense, the war minister, General Hellebaut, declared that every necessary step had been taken and that in case of foreign invasion the Belgian military forces were fully prepared.

Considerable anxiety was occasioned in Belgium by the Dutch scheme for the fortification of Flushing, as a violation of the treaty of 1839. See *NETHERLANDS, History*.

OTHER MATTERS BEFORE PARLIAMENT. Parliament voted the law providing for old-age pensions to coal miners. It was published on June 9, 1911, and was to go into effect on January 1, 1912. The age at which a pension could be drawn was fixed at 60 years, but it was lowered to 55 years for those who had worked at least thirty years in the mines. It required contributions from employers and workmen until a pension of 360 francs a year was assured, after which the payment ceased to be obligatory. The language question continued to occupy the public mind both in and out of Parliament. The movement, summed up in the formula "Flemish for Flanders," gained force, especially at Antwerp, where the communal administration went so far, it was said, as to refuse to receive communications in French. In the educational field, the champions of the Flemish tongue had succeeded in having the instruction given in that language in the Flemish provinces where French was taught as a foreign language. This applied, however, only to secondary education and they now sought to extend it to higher education. Two measures were introduced into the Chamber for that purpose. The first required

that the state university at Ghent be changed into a Flemish institution. It was pointed out that this would seriously injure the university where not only Flemings but French-speaking students and many foreigners were in attendance. Accordingly, another measure was proposed authorizing the establishment at Ghent of Flemish courses along with those in French. The Flemish element rejected this and held out for the Flemish tongue throughout the university. The Walloons resented these demands and many heated discussions took place on the subject. Some demanded administrative separation, leaving Flanders to the Flemish and making the Walloons supreme in their own regions. Others favored a policy that would allow those Flemings who desired to retain French as their medium to do so.

THE ESTATE OF THE LATE KING LEOPOLD. The case of Princess Louise for the recovery of her share of the estate of the late King Leopold came up for trial. The fortune of the king was estimated by her counsel at 75,000,000 francs, of which only 20,000,000 had been bequeathed to the princess, the remainder going to the Niederfullbach Foundation, on whose behalf it was contended that the society had no right to the personal property of the king and that he had no right to bequeath it away from his family to the Niederfullbach Foundation, which was not recognized by the Belgian law. The court decided against her in November, 1911, the verdict requiring her to pay a large part of the costs, but held that a sum of money amounting to about \$300,000 given by the late king to the Niederfullbach Foundation a few days before his death should be divided between her and Princess Stephanie. Princess Louise entered an appeal from the decision. By the terms of the late King Leopold's will, \$3,000,000 was bequeathed to his daughters. As he had amassed an enormous fortune by his Congo enterprises, inquiries were set on foot to ascertain what had become of it and it was found that some \$7,000,000 had been given to the Baroness Vaughan, the king's morganatic wife, and that an amount estimated at \$10,000,000 had been invested in the concern known as the Niederfullbach Foundation. Princess Louise brought suit for the recovery of the latter sum as family property, but the Belgian government claimed that the profits belonged to the Congo State and were therefore the property of the government, which had annexed the colony in 1908. The present King Albert in order to avoid scandal had renounced in 1910 his claim and that of his children to any share of his father's estate, and the Princess Clementine compromised with the government for \$720,000 before the case was tried. The other two sisters, however, had gone on to fight the case in the courts.

BELL, CHARLES FREDERIC MOBERLY. Managing director of the *London Times*, died April 5, 1911. He was born in Alexandria, Egypt, in 1847 and was educated at a private school in Lancashire. At the age of 17, his health being delicate, he was sent back to Egypt. At 21 years of age he became a partner in the firm of Peel & Co. Before this, however, he had become correspondent for the *Times* in Egypt and in this position made himself thoroughly acquainted with Egyptian politics in the personalities of all the important officials with whom he came in contact. His grasp of the English situation as it developed and changed from time to time was

shown in the three books on Egyptian affairs which he published during his stay in Egypt. The first of these was *Khedives and Pashas*, published anonymously in 1881. The second was *Egyptian Finance*, published in 1887, and the third a series of historical and descriptive sketches entitled *From Pharaoh to Fellah*. The progress of affairs in Egypt made the position of the correspondent of the *Times* one of great importance. Among the events which he described were the revolt of Arabi (q. v.), which led to the bombardment of Alexandria and the campaign of Tel-el-Kebir and the British occupation. His letters sent to the *Times* had a great influence on English public opinion in 1890. He was recalled from Egypt to take up the post of manager of the *Times*. The affairs of the paper at that time were in a critical condition owing to the death of the former manager and the expenditure incidental to the Parnell commission. By great exertion and constant devotion to the task, he succeeded in freeing the paper from its embarrassments. His constant endeavor was to widen the sphere of activity of the *Times* and to enlarge the range of its service by utilizing all the resources of its organizations. Among the enterprises which were undertaken under his direction were the *Times' Atlas*, the *Encyclopædia Britannica Supplement*, *A History of the South African War* and the *Times Book Club*. In the crisis which occurred in the history of the paper in 1908, and which resulted in the formation of the Times Publishing Company, Limited, he took a prominent part. The reconstitution then effected was the result of suits instituted in the lower courts for the purpose of adjusting the more or less conflicting rights and interests of the several proprietors of the paper. Bell was chosen managing editor of the Times Publishing Company. Aside from his duties as business manager of the paper, he kept in close touch with the editorial side through his dealings with the staff of permanent and special correspondents abroad. He took a great interest in newspaper copyright and was largely responsible for establishing the legality of newspaper copyright even in news.

BELL, JOSEPH. A Scotch surgeon, died in October, 1911. He was born at Edinburgh, in 1837, and was educated at Edinburgh University. Having studied medicine he engaged in the practice and became one of the most successful surgeons in the United Kingdom. He was for nearly twenty-five years identified with the Edinburgh Royal Infirmary as surgeon. On his retirement from this post he was made consulting surgeon of this hospital. For over twenty years he was editor of the *Edinburgh Medical Journal*. He was the author of *A Manual of Surgical Operations* (1894), and *Notes on Surgery for Nurses* (1906). When Sir Conan Doyle was a medical student at Edinburgh University, he was so impressed by the intuitive powers of Dr. Bell in the examination of patients and making successful deductions from what appeared to be trivial details that he largely based on him the famous character of Sherlock Holmes.

BELLEW, HAROLD KYLE MONEY. An actor, died November 2, 1911. He was born in Calcutta, India, in 1857. For seven years he served as cadet in the English navy and then went to the Australian gold fields. He worked for a time on newspapers in Melbourne and then

returned to England. He made his début on the stage at the Theatre Royal at Brighton and showed such talent that he soon became leading man and starred in London. In 1882 he came to the United States to appear in *Diana le lys*. When he discovered that the play had failed in Paris he refused to take the part. He came again to the United States in 1885 as leading man in Wallack's Theatre. He soon became one of the most popular actors on the American stage. At Wallack's he played a long line of parts in the classic drama as well as the modern repertoire. He was especially successful in such melodrama as *Harbor Lights* and in *Clariessa*, a dramatization of Richardson's novel. His greatest successes, however, were in the so-called costume or romantic drama. While acting at Wallack's Theatre he met Mrs. James Brown Potter and when she became an actress they played for many years together. He took leading roles with her in legitimate drama in all English-speaking countries. Among the plays in which they appeared jointly were *Civil War*, *Loyal Love*, *Romeo and Juliet*, *Antony and Cleopatra*, and *The Queen's Necklace*. In 1900-02 he headed an exploring expedition in North Queensland. He returned to the stage at the head of his own company in 1902. His most popular portrayals in recent years were the hero in *Raffles*, and the husband in *The Thief*. At the time of his death he was undoubtedly among the most distinguished actors speaking the English tongue. He was the author of *Yvonne*, *Iolande*, *Hero and Leander*, *Charlotte Corday*, and several adaptations.

BELLOC, HILAIRE. See LITERATURE, ENGLISH AND AMERICAN.

BENEDICT, ROBERT DEWEY. An American lawyer, died in July, 1911. He was born at Burlington, Vt., in 1828 and graduated from the University of Vermont in 1848. He studied law and was admitted to the bar in 1851. He established a practice in New York City and continued there until 1906 when he retired. He made a specialty of admiralty law. He was the author of *Cases Argued and Determined in the District Courts of the United States within the Second Circuit* (10 vols. 1869-1882), and edited *Benedict's Admiralty*. He also wrote and published several addresses. He was a member of several learned and patriotic societies.

BENEFACCTIONS. See GIFTS AND REQUESTS.

BENGAZI. See TRIPOLI.

BENNETT, ARNOLD. See LITERATURE, ENGLISH AND AMERICAN.

BENNETT, MADRYNE (SCHILLER). A German-American pianist, died July 4, 1911. She was born in London of German parents. She first studied music under Isaacs, a noted London teacher, and later took lessons from Sir Charles Benedict and Sir Charles Halle. She studied also in Leipzig, where she was for over a year a pupil of Moscheles. Her début as a pianist was made in that city, when she played the G minor concerto of Mendelssohn. Her success was so great that she traveled through the cities of Germany before she made her first appearance in London. Following this she made a successful tour of Australia. She came to the United States and was married to Marcus Elmer Bennett of Boston. She then settled for several years in that city. She re-

turned to Australia and after a tour of continental capitals came back in 1898 to New York. She was obliged to retire from public appearances on account of ill health and for the remainder of her life was engaged in the teaching of music.

BENTON, JOEL. An American poet and author, died September 15, 1911. He was born in Amenia, N. Y., in 1832, and was educated at Amenia Seminary. He taught school and for a time engaged in journalism. He was the author of *Emerson as a Poet* (1882), *The Truth about Protection* (1892), *Greeley on Lincoln* (1893), and *In the Poe Circle* (1899). He also contributed poems and criticisms to periodicals and occasionally lectured for lyceums and on public occasions.

BENUE RIVER. See EXPLORATION.

BEREA COLLEGE. An institution of higher learning, founded in 1855, at Berea, Ky., for the education of the white youth of both sexes in the mountain regions of Kentucky and the neighboring States. There were enrolled in the various departments of the college in 1910-11 1129 students. The faculty numbered eighty. Among the new appointments for the year 1911-12 were those of Edward C. Downing, Ph. D., dean of the collegiate department and professor of Latin; Horace E. Cromer, acting professor of mathematics; Mrs. Anna Ernberg, director of fireside industries, and Miss Blanche Thurston, instructor in cabinet organ and piano. During the year a gift of \$100,000 was received from Dr. Daniel K. Pearsons of Chicago, on his ninety-first birthday, April 14, 1911. The productive funds of the college amount to \$800,000, and the income from home sources to about \$53,000, leaving \$57,000 to be raised by current gifts to meet a budget of \$110,000. The institution is segregating its work in five distinct departments, each with its own faculty, and will have ultimately in separate buildings, the college proper, the normal school, the academy, the vocational schools, and the foundation school for young people of some maturity who are still in the elementary branches. In the vocational schools the college is making prominent such special adaptations as mountain agriculture and woodwork for men and nursing and household management for women. The normal department is giving special attention to the rural conditions which exist in their most extreme forms in the mountains. The library of the college contains about 25,000 volumes. The president is William Goodell Frost, Ph. D., D. D.

BERGSON, HENRI. See PHILOSOPHY.

BERIBERI. The nearly complete eradication of beriberi from the Philippine Islands by the simple method of substituting hand-milled for polished rice was hailed as a triumph of modern sanitation. Prior to May, 1910, beriberi was very common in the islands, in jails, lighthouses, charitable institutions, leper colonies, and among the Filipino scouts of the United States army. At this time, as the result of extensive investigation into the subject, the government decided that the cause was a staple diet of polished rice, and issued an order prohibiting the use of grain so prepared in all public civil institutions. The effect was immediate. Since August, 1910, according to Heiser, only two cases of beriberi were observed in the above mentioned institutions. An unusual opportunity to study the influence of diet

on the development of beriberi was offered to Frazier and Stanton in the employment of 300 native laborers in the construction of a road through the virgin Malayan jungle. By examining the candidates for work, they first excluded men already suffering from the disease. The laborers chosen were divided into two equal parties, who were housed at a distance from each other, but under similar sanitary conditions. One party was then fed on polished rice as the staple article of diet, the other on rice which had been parboiled before husking, the latter grain differing from the former in the preservation of a great part of the sub-pericarpal layers, which are removed almost wholly by the usual methods of polishing. Of the two parties, the men fed on polished rice began to develop cases of beriberi in three months, while the other party remained perfectly free from the disease. Conditions were then reversed, and after a somewhat longer period the party previously exempt began to develop symptoms. The polished rice thus responsible for human beriberi was then tested by feeding fowls with it. It was already known that chickens fed on such grain would develop an affection closely resembling human beriberi, and Frazier and Stanton were able to cause a similar condition in the fowls with which they experimented. Attempts to extract a soluble poison from the polished grain were unsuccessful, but they did succeed in determining to a certain extent the element essential for protection against beriberi, namely phytin, a complex organic compound containing a high percentage of phosphorus pentoxid. As the amount of phosphoric acid in the grain had been found to give an index to its power to prevent beriberi, it was first thought that this might be the desired constituent, but feeding experiments contradicted this view, while the extract, after removal of the phytin, was still effective. The Philippine government considers rice which contains less than 0.4 per cent. of phosphorous pentoxid as polished rice, and that which contains over 0.4 per cent. of phosphorous pentoxid is regarded as unpolished rice. Another confirmation of the polished rice theory is found in the use of rice bran. Bréaudat and Denier report from the Pasteur Institute at Saigon, Indo-China, that rice bran seems to remove the cause of beriberi and prevent its development. They gave the bran in the form of pills, about forty grams of the bran being added daily to the ordinary diet. It never caused any digestive disturbance and it had a decided curative action. Two hundred and ten native soldiers who took the pills remained free from beriberi for six months, while 17.4 per cent. of 311 soldiers who did not take the pills developed the disease.

BERLIN. See MUNICIPAL GOVERNMENT.

BERLIN, RIOTS IN. See GERMANY, *History*.

BERMUDA. A British colony, made up of over 300 small islands lying east of North Carolina and 677 miles from New York. Total area, about 19 square miles. Total population (1901), 17,535 (6383 whites); 1911, 18,994 (6691 whites). Chief town, Hamilton, with (1911) 2627 inhabitants. Onions, potatoes and other vegetables, lily bulbs, and arrowroot are grown.

Imports for 1909 were valued at £440,648, exports £183,884. Trade with Great Britain (1910), £158,043 and £2475. There are 214 miles of military, and 1200 of private telephone lines; and the colony is connected by cable

with Halifax, Nova Scotia, Turks Island, and Jamaica. Post offices, 19. Revenue and expenditure (1910), £78,593 and £68,392. Public debt, £45,500. The governor (1911, Lieut.-Gen. Sir F. W. Kitchener) is also commander-in-chief of the military forces.

BERNIE, J. E. See POLAR RESEARCH.

BERTEAUX, HENRI MAURICE. French minister of war, killed by an aeroplane in Paris on May 21, 1911. He was born at Saint-Maur-les-Fossés in 1852. He engaged in the business of stock-broking and made a fortune early in life. He was elected mayor of Chatou and was made a member of the Legion of Honor. He became interested in Socialism and in 1893 he was elected to the Chamber of Deputies as a representative of Versailles and as a Radical-Socialist. He showed an interest in military affairs and in 1902 headed the committee of the Chamber of Deputies that presented the war budget. In 1904 when General André resigned the portfolio of minister of war in the Combes ministry. Berteaux was selected to fill the office. The selection was received without enthusiasm by the people. At the end of a year's service he resigned the office. In the meantime, M. Combes had resigned, but his successor, M. Rouvier, had continued Berteaux in the cabinet. His administration of the ministry of war at this time was not particularly notable. He assigned the active duties of the office to General Peigne. In 1905 he showed himself opposed to duelling by ordering the arrest of generals Magron and Percin, who were making preparations to fight a duel. He took part in the functions connected with the removal of the body of John Paul Jones from France to the United States. Following his retirement from the ministry of war, he was made president of the army commission of the Chamber of Deputies. He was several times reflected as a deputy and was vice-president of the Chamber in 1906. In the spring of 1911 the portfolio of the war minister was offered to him by Premier Monis and it was accepted. He was looked upon by those familiar with French politics as one of the few strong men in the Monis ministry. See FRANCE, *History*.

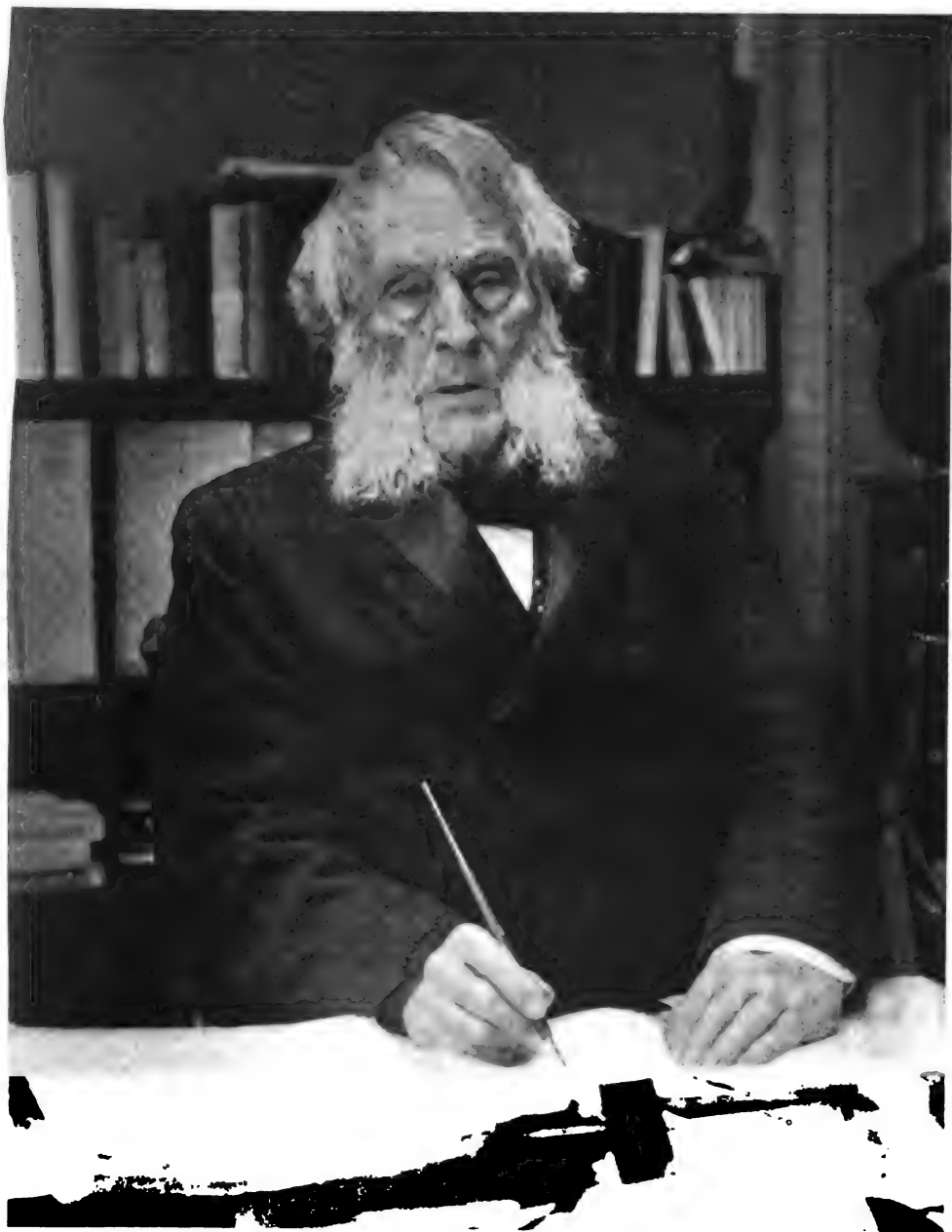
BETH-SHEMESH. See ARCHAEOLOGY, *Palistine*.

BIBLE SOCIETY, AMERICAN. The American Bible Society, founded in 1861, has for its purpose the encouragement of a wider circulation of the Holy Scriptures without any comment. The year 1911 was the ninety-fifth of its existence. During the year 1,028,357 volumes of Biblical literatures were issued. This total was made up of 278,009 Bibles, 300,159 Testaments, and Testaments and Psalms, 448,157 portions of Scripture, and 2032 volumes in the various raised characters for the blind. Scriptures were issued in eighty languages other than English. The largest number issued was in the Spanish language, 259,996. The society maintains agencies among the colored people of the South and in other parts of the United States, in the West Indies, Mexico, Central America, Venezuela, Brazil, the Levant, Siam, China, Korea, Japan, Philippine Islands, Africa, and Micronesia. The total appropriations for its work in 1911 amounted to \$790,230.

BICYCLING. See CYCLING.

BIGELOW, JOHN. An American author, diplomat, and publicist, died December 19, 1911. He was born in Malden, Ulster county, New

York in 1817 and graduated from Union College in 1835. He studied law and in 1839 was admitted to the bar. Following his graduation from college he took up his residence in New York City. This remained his home until the time of his death. Together with the practice of law he began to write for the newspapers of that time, and his articles on constitutional reform published in 1845 were widely circulated and caused a great deal of comment. In the same year he was appointed an inspector of Sing Sing prison, and held this office for one year. After serving as editor of a periodical called the *Plebeian* and of the *Daily News*, he became an editor and part owner of the *New York Evening Post* in 1849. This was brought about largely by his support of the candidacy of Martin Van Buren in his writings which brought him to the notice of William Cullen Bryant, at that time editor and proprietor of the *Post*. He continued as part proprietor and managing editor until 1861. In this year began his diplomatic career in his appointment as consul at Paris by President Lincoln. This post he held until 1864 when he was promoted to be minister to France to succeed William L. Dayton, who died. The difficulties of this position were very serious on account of the intrigues of the French Emperor with the commissioners of the Confederacy. He discovered and frustrated the attempt of the French government to supply the Confederate States with four ironclad warships. In August, 1865, he wrote to Secretary of State Seward in reference to the relations between the United States and France as affected by the French operations in Mexico. This drew from Mr. Seward the remarkable state paper which practically resulted in the destruction of the French Emperor's hopes for an empire in Mexico. On February 12, 1866, Mr. Bigelow presented to the French government the note which demanded the withdrawal of Napoleon's troops from Mexico, to which France was forced to accede and which resulted in the abandonment and death of Maximilian. His historical and literary aims resulted in his acquisition during his service as minister to France, of many important and interesting materials which he used in his later writings. Among these was the original manuscript memoirs of Benjamin Franklin. During his residence in France he published in French *Les États Unis en 1865*, and *Some Recollections of Antoine Pierre Herryer, and France and Hereditary Monarchy*. At the conclusion of his service as minister, Mr. Bigelow after a brief return to the United States went to Berlin for the purpose of having his children educated in that city. In 1873 he returned to the United States and at once took up literary work. He resumed a friendship which dated back for several years with Samuel J. Tilden, who, two years later, appointed him one of four commissioners to investigate the management of the State canals. This investigation resulted in the overthrow of the canal ring. In recognition of this work Governor Tilden secured for him the nomination for secretary of state, to which he was elected by defeating Fred W. Seward, the Republican candidate, by 14,810 votes. At the expiration of his term of office he and Mr. Tilden went together to Europe for a tour of recreation. In 1885 the post of assistant treasurer at New York was offered to him by President Cleveland,



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JOHN BIGELOW
HIS LAST PHOTOGRAPH

but this he declined. He went to Panama to report to the Chamber of Commerce for New York City the prospects for the completion of the canal under De Lesseps. He made a careful investigation and reported that while the problem seemed to be a very simple one yet nothing in fact could be more delusive. The Chamber of Commerce was so pleased with the manner in which the investigation had been conducted that Mr. Bigelow was elected an honorary member of that body. In 1888 he was appointed by President Cleveland United States commissioner to the Exposition at Brussels. He was a member of the New York State constitutional convention of 1894.

By the will of Samuel J. Tilden, Mr. Bigelow was appointed a trustee of the money left by the former, which was to be applied to the establishment and maintenance of a public library. By the terms of the same will he was also made Mr. Tilden's authorized biographer and in 1875 he published his *Life of Samuel J. Tilden*. Mr. Bigelow was throughout his life a Democrat, but his period of great activity in politics ended with the death of Mr. Tilden. He did not hesitate, however, at various times to express his opinion in regard to current political methods. He regarded the war with Spain as entirely unprovoked and he held President McKinley responsible for it. He was opposed to William J. Bryan and characterized him as having the merits and limitations of a first-class newspaper reporter. In 1906 he supported Charles E. Hughes for Governor of the State of New York. In spite of his opinion of Mr. Bryan he supported the latter's candidacy in 1906, regarding as the chief issues the organization of an opposition party and further revision of the tariff. Most of his writings in his last year were in favor of tariff reform. Mr. Bigelow took the greatest interest in the development of the public library system in New York City, and at the time of his death was president of the Board of Trustees of the New York Public Library, Astor, Lenox and Tilden foundations. In spite of his advanced years he continued to make yearly visits to France and other European countries. His last trip was made in the spring of 1911. His last public appearance was at the dedication of the New York Public Library on May 24, 1911.

Mr. Bigelow not only met practically every prominent contemporary American statesman, but was a warm friend of such eminent English statesmen as Richard Cobden, John Bright, and Mr. Gladstone. During one of his visits to England he dined with Thackeray. He continued in active literary work almost until the time of his death. He was engaged in the further writing on his *Retrospections*, of which several volumes had already been published. His published writings, in addition to those already mentioned include: *Jamaica in 1850* ('852); *Life of Benjamin Franklin* (1868); *France and the Confederate Navy* (1888); *The Bible that Was Dead and is Alive Again* (1893); *The Life of William Cullen Bryant* (1893); *The Mystery of Sleep* (1897); *Gladstone, Morley and the Confederate Loan of 1863* (1905); *What Shall We Do for Our Presidents and What Shall They Do for Us?* (1906); *Letters and Literary Memorials of Samuel J. Tilden* (1908); and *Retrospections of an Active Life* (3 volumes, 1910).

BIJAGOZ. An archipelago administered under Portuguese New Guinea (q. v.).

BILLIARDS AND POOL. Professional billiard matches were few in number in 1911, the players in this class appreciating the hopelessness of trying to wrest the championship from William Hoppa. George Sutton did finally challenge Hoppe for the 18.2 laurels, but was easily defeated by the score of 500 to 266. In other professional matches Hoppe defeated A. Curé, the French champion, and George Slosson. The three-cushion game continued to prove popular in 1911. Alfred de Oro successfully defended his championship title in matches with Thomas A. Hueston, George Wheeler, and John A. Day, the contest with the latter being a very close one. De Oro also retained his title as continuous pool champion, defeating Jerome Keogh, W. H. Clearwater, W. Douglas, Thomas Hueston, and Alexander Smith.

There was much greater activity in amateur billiard circles during the year than in the professional ranks. Charles F. Conklin of Chicago won the international amateur 18.2 balk-line championship against a good field by defeating J. F. Poggenburg of New York in the play off for first place. Edward W. Gardner of Montclair, N. J., finished third and Albert Poensgen of Munich, Germany, fourth. In the class B. competition, G. P. B. Clarke won the title after a triple tie in which C. E. White, the champion of 1910, figured.

BIOGRAPHY, LITERARY. See LITERATURE, ENGLISH AND AMERICAN.

BIOLOGICAL LABORATORIES. An important change at the Marine Biological Laboratory at Woods Hole, Mass., was effected by the resignation of Dr. G. A. Drew, assistant director of the laboratory, from his teaching position at the University of Maine, to give his entire time to research and to the administration of the laboratory. This will enable investigators to work at the laboratory at any time in the year. It is expected that new, well-equipped buildings for research will be erected at the laboratory in the near future. At the Carnegie laboratory at the Dry Tortugas, new buildings were put up to replace those injured by a hurricane in 1910. These are of a more permanent character than the old ones, experience having justified the choice of the Tortugas as a permanent station. A new motor boat, the *Anton Dohrn*, with 100-horsepower gasoline engines, was added to the equipment of the laboratory in 1911.

BIOLOGY. General topics relating to researches on heredity, evolution, sex, etc., are treated in this article. For morphology of animals, see ZOOLOGY; of plants, see BOTANY. Special articles dealing with insects, fish and birds will be found under the headings, ENTOMOLOGY, FISH AND FISHERIES, and ORNITHOLOGY, respectively.

HEREDITY. As has been indicated in previous YEAR BOOKS, a most important development of biological research in recent years has been the increasing attention paid to the study of heredity, from both the Mendelian and the statistical points of view. (See YEAR BOOK for 1910 for the difference between Galtonism and Mendelism). An enormous mass of data has now been accumulated especially in connection with the applications of Mendel's law. Any general conclusions concerning the significance of these re-

sults would at the present time be merely tentative, to be held only until further investigation shall furnish new material for consideration. So far as can be seen at present the "presence and absence" hypothesis (see YEAR BOOK for 1907), according to which a character is allelomorphic to its own absence, offers the most rational explanation of some observed phenomena. Much information has also been obtained on the subject of sex-limited heredity, in which some special character, not a true secondary sex character, appears in connection with only one sex. Renewed evidence has been obtained in favor of the hypothesis that bodily characteristics may be due to the combination of several component "factors" which, following Mendel's law, may be separated and recombined into entirely new combinations. The loss of a single one of these factors may be sufficient to cause the apparent loss of the characteristic. A good illustration of these forms of heredity is given in Morgan's results in breeding the fruit fly, *Drosophila*. In laboratory cultures of these animals, which normally have red eyes, there appeared individuals with white, pink, vermilion, and orange-colored eyes. Each of these mutants bred true if bred with its own color, but when crossed with others, gave either the normal red, or one of the other above-mentioned colors in definite proportions. This Morgan explains on the assumption of factors R, P, and O for red, pink, and orange respectively, vermilion being due to a combination of P with O. In addition there is an activating agent C which must be present if any color is to appear. Thus, if (the absence of a character being represented by a lower-case letter, its presence by a capital) the factors present in the eye be CRPO, its color will be red; if cRPO, white; if CrPO, pink; if CrPo, orange. Morgan assumes that these factors are carried by the chromosomes, and further assumes that one, the "X," chromosome determines sex. In the fruit fly the white-eyed condition is associated with the male sex. In this and other sex-limited characteristics Morgan supposed the chromosome structure which produces the characteristic to be permanently associated with the X chromosome, a supposition for which he found evidence in his experiments. This assumption of a factorial combination of characters affords a plausible explanation of the phenomena of atavism. If a characteristic is produced by a series of factors, all of which must be present if the characteristic is to appear, the loss of one factor is sufficient to cause the apparent loss of the characteristic. The other factors might remain, and if at any later breeding the individual happens to mate with one possessing the missing factor, the lost characteristic will reappear.

SEX HEREDITY. While no adequate explanation has yet been advanced for the meaning of sex, evidence is accumulating that sex is a characteristic which is inherited in accordance with Mendel's law. As was indicated in the YEAR BOOK for 1910, there is reason to believe that sex is in some way determined by the accessory chromosome. While most of the chromosomes of the egg and spermatozoön are paired, there has been found in some cases one chromosome either unpaired or paired with one of unequal size. These are known as the X and Y chromosomes respectively. Thus in some insects, the female body cells have one more chro-

mosome than the male. The eggs are alike in the number of their chromosomes while the spermatozoa are of two sorts, half with a number equal to that of the egg, and half with one less. The extra chromosome in half of the spermatozoa is the X. An egg fertilized with this develops into a female, while an egg fertilized with the other form develops into a male. This may be purely a quantitative process, the female simply having more chromosomal material than the male, or there may be a true qualitative difference. Stated in Mendelian terms the female is heterozygous, or a hybrid as far as sex is concerned, while the male is homozygous. If as sometimes happens there is a Y chromosome as a mate to the X, it is supposed not to have any relation to sex determination, since the results are the same as if the Y were absent. In some animals the male has the extra chromosome, and is apparently heterozygous, while the female is homozygous. Morgan believes, however, that there must be a definite determiner for the male as well as for the female, though it is not carried by the X chromosome.

CHROMOSOMES. The results of chromosome study were summarized by Wilson. "Studies on the chromosomes have steadily accumulated evidence that in the distribution of these bodies we see a mechanism that *may* be competent to explain some of the most complicated of the phenomena that are being brought to light by the study of heredity."

EUGENICS. By the will of Sir Francis Galton (q. v.), who died on January 17, 1911, his residuary estate of about £45,000 was left to found at the University of London a laboratory for the study of eugenics. The term was defined in Galton's will as "study of the agencies under human control, which may improve or impair the racial faculties of future generations physically and mentally."

A special request was made that Professor Karl Pearson should be the first director of this laboratory, and he has since begun the organization of the work. At Cold Spring Harbor, eugenics headquarters for the work in the United States have been established under the general direction of Dr. C. B. Davenport, with H. H. Laughlin in immediate charge. Several field workers have been trained and were at work in 1911 collecting data of heredity along a number of different lines. Davenport apparently considers that many defectives are not pathological, but have merely retained ancestral characters which the majority of mankind have dropped in the course of their evolution. Under modern conditions defectives are not eliminated so ruthlessly as formerly, and are even allowed to reproduce. Davenport declared that "society must find some way to end these animalistic blood lines or they will end society." Miss Elderton concluded from investigation of the offspring of the marriage of first cousins, that (1) there is no evidence as to whether these unions are more or less fertile than other marriages; (2) the issue of such marriages is apt to show a greater mortality under the age of thirty; (3) albinism, deaf mutism, etc., are more apt to occur among the issue of such marriages than among the general population. The Eugenics Education Society, of which Leonard Darwin is president, reported that branches have been started in New Zealand, where already eugenic ideas are being embodied in state legislation. Books of the year dealing with heredity

are Castle, *Heredity*; Darbyshire, *Breeding and the Mendelian Discovery*; and a new edition of Punnett, *Mendelism*. Kellicott's *Social Direction of Human Evolution* is a popular account of the aims and methods of eugenics.

MUTATION. As stated above, Morgan found definite mutants occurring among the cultures of fruit flies. He was also able, as were independently Loeb and Bancroft, to produce mutants in these flies by subjecting them to the action of radium. This treatment resulted in changes in such characters as the form of the wings, etc., some of which appeared in subsequent generations.

There was, however, difference of opinion among biologists as to the value of mutations in evolution. Davis, as a result of experiments on the evening primrose, decided that the *Oenothera lamarckiana*, which was the form used by de Vries, is not a true species, as de Vries supposed, but is really a hybrid between *O. biennis* and *O. grandiflora*. Thus its apparent sporting character is merely a separation into its component species. Osborn accepted the validity of this argument as bearing out his own observation on the titanotheres, where he found that new characters arise by a gradual change, the final organism being composed of a complex of these characters. If this is crossed with another race, the hybrid will possess a combination of these characters and thus show mutation. Osborn thinks that most experiments in favor of discontinuity in evolution have been performed on hybrids. Gates, however, while admitting the force of the evidence that *Oenothera lamarckiana* is a hybrid, thinks that true mutations have appeared.

INHERITANCE OF ACQUIRED CHARACTERS. Macieszka and Wrzosek repeated the experiments of Brown-Séquard of sectioning the ischiadicus nerve of the guinea pig. In Brown-Séquard's experiments this operation was, he thought, followed by epilepsy, which was transmitted to the offspring of the injured animals. The authors found that abnormalities did often follow the operation, and that these were like those found by Brown-Séquard. Examination of the untreated animals showed, however, that in the ordinary course of things, quite as large a proportion of the animals showed these abnormalities as Brown-Séquard or they had found in the operated ones. Similar experiments on white mice showed also that there are no more abnormalities in the offspring of injured mice than in those of uninjured ones.

GERM PLASM. An important part of Weismann's theory of heredity is that the Metazoa differ essentially from Protozoa in a sharper distinction between body plasm and germ plasm. Calkins showed that the distinction is not a valid one, for there is really a separation in the Protozoa, between the gametes, which continue the race, and body plasm, which dies. This is more obscure in forms like *Paramecium*, where the body plasm remains as a carrier of the germ plasm. The dividing and degenerating meganucleus represents the body, while the micronucleus represents gametes, most of which do not conjugate. Child, discussing the regeneration of a new planarian from a fragment of an old one, considers this fragment to be as much germ plasm as anything in the egg. Thus body and germ plasm are essentially the same thing. Hargitt, working on the development of the hydroid egg, found that the cleavage is so ir-

regular, and that it is so largely a matter of chance whether any particular cell will grow into a part of the larva or become food for the other cells, that it was difficult to conceive of a germ plasm separate from body plasm, in the sense in which Weismann used the terms.

VITALISM AND MECHANISM. Driesch and others (see YEAR BOOK for 1908) believe that many observed phenomena, especially those connected with regeneration, can only be explained on the assumption of a vital force or "entelechy," which, though not subject to the laws of force which govern the activities of organisms, are a regulating mechanism for these activities. This has apparently met with little favor among biologists in general, who hold that, even if the opposite or mechanistic theory of life has not been proved, more progress will be made by using it as a working hypothesis than by accepting vitalism. Wheeler drew a parallel between an ant community and an organism. In the ant community there is regulation and adjustment exactly as in the organism, and an entelechy is as superfluous in the one case as in the other. Loeb also, as a thoroughgoing mechanist, stated that we already know that many so-called vital processes are enzyme activities, thus purely chemico-physical in their character. Illustrations are digestive and assimilative processes in animals. Loeb thinks he has shown that the fertilization of the egg is purely a chemico-physical process, since by the addition of chemicals the action of the spermatozoön in fertilization can be perfectly replaced. The riddle of heredity, as he thought, now reduced itself to a chemico-physical question, since we know an exact relationship exists between definite characteristics and certain chromosomes, and know that in some characteristics, as e. g. the production of a black color, we have to deal merely with an enzyme acting upon a definite substance. The harmonics which we see, and which seem to need an entelechy for their explanation, are really only the few adjustments which happened to appear as adjustments. We forget that they are but a fraction of the number of attempts at adjustment, which have proved to be disharmonies, and have disappeared because of lack of adjustment to environment. Child reached somewhat similar conclusions in the discussion of results of extended experiments on regeneration in the planarians. The living organism is the product of its own functioning, and not a machine put together before it begins to function. Thus a process of adjustment, or equilibration, has arisen. He believed, in agreement with Loeb, that present-day adaptations are only the few which were able to survive, the majority of attempts at adaptation having been unsuccessful. Thus the regulation and the structure must have grown up together, and there is no need for entelechy, biophores, pangenes, etc. It is inaccurate to set off certain processes as "regulations," but we should regard them as essentially similar to all life processes.

MECHANISM OF HEREDITARY TRANSMISSION. In some cases, the chromosomes of the sex cells seem to have definite relations with the transmission of characteristics from one generation to the next, but some biologists believe that the cytoplasm of the sex cell is as important in this process as is the nucleus. Hertwig (See YEAR BOOK for 1910) believes in the nucleus as the carrier of heredity, and experimented on the effects of treating the eggs and sperm with ra-

dium rays. Developing embryos treated with radium gave abnormal embryos. If the sperm were "rayed" before fertilization, fewer abnormal embryos appeared. G. Hertwig followed with similar experiments from which he concluded that more abnormalities appeared if the nucleus were affected than if the cytoplasm had been injured. From this he concluded that the nucleus is the essential organ in determining the character of the offspring.

CONCEALING COLORATION IN ANIMALS. Gadow, from a study of the coral snakes, concluded that there is no reason to consider their color as protective, since more mimicking than mimicked forms may be present on the same area. Punnett made a study of Ceylon butterflies. In the case of *Papilio polytes*, he found three types of females: (1) like the male; (2) like *P. aristolochiæ*; (3) like *P. hector*. Wallace supposed (2) and (3) to mimic distasteful forms, since *P. polytes* is edible. Punnett found that in the low country the *polytes* form is as abundant as either of the others. In the northeast of the island where *P. hector* occurs the *aristolochiæ* form is as abundant as the *hector*, though the model is scarce. Where *P. hector* is rare or absent and *P. aristolochiæ* is common, the *hector* form of *polytes* is more abundant than the *aristolochiæ*. Punnett concluded that, as serious enemies of insects, birds may be left out of account. The difficulty in the way of supposing that small variations have a selective value led Punnett to conclude that these color varieties arise through mutation and not through selection. The fact that only females do the mimicking leads to the suggestion that there is a gametic coupling between these characters and the female sex. Manders stated that in Bourbon and Mauritius there are no insect-eating birds or reptiles; hence cases of mimicry reported from there are not due to development of color as a protection from enemies. In Ceylon, butterfly-eaters are impartial feeders, and the differences between the mimicking and the mimicked are so easily seen that birds must be able to detect the differences. *Euplaeus* are eaten by *Drongos*, hence the *Papilio* imitating *Euplaeus* is not protected. On the other hand, Pockock, from a study of British insects, concludes that they are protected by their color and other characters. Thayer's theory of concealing coloration was severely criticised during the year, notably by Roosevelt, who declares that in most cases in birds and mammals coloration is of slight importance from the standpoint of preserving life, as compared with the animal's cunning, wariness, ferocity, speed, etc.

BIRD, JOHN T. An American jurist, died May 6, 1911. He was born at Bethlehem, N. J., in 1829, and spent his early life on his father's farm. He became a school teacher and after studying law was admitted to the bar. He was made prosecuting attorney of Hunterdon county and served in Congress from 1868 to 1872. In the latter year he was appointed a member of the New Jersey Constitutional Convention and in the same year was appointed vice-chancellor of the State. He served in that capacity for fourteen years.

BIRD PROTECTION. See ORNITHOLOGY.

BIRMINGHAM, ALA. See ALABAMA.

BIRMINGHAM, ENG. See NAVAL PROGRESS, paragraph *Propulsion*.

BISMARCK ARCHIPELAGO. A German

protectorate under the administration of German New Guinea. Estimated area (with German Solomon Islands), 22,000 square miles; estimated population, 250,000. Whites in 1910, 462.

BLACKFOOT. See ANTHROPOLOGY.

BLANCHE. See NAVAL PROGRESS, paragraph *Propulsion*.

BLISS, CORNELIUS NEWTON. An American merchant and public official, died October 9, 1911. He was born at Fall River, Mass., in 1833, and was educated in the public and high schools of that city. His father died when he was a boy, and his mother remarried and moved to New Orleans, where at the age of fourteen years he joined her. He found the South uncongenial and returned to Boston, where he secured employment in the importing house of James M. Beebe & Company. He rose step by step until he became a member of the firm. In 1886 he became a member of the firm of J. S. & E. Wright, doing a dry goods commission business. This firm had a branch in New York and Mr. Bliss took charge of this. The firm name was changed later to Wright, Bliss & Fabyan, and then to Bliss, Fabyan & Company. Mr. Bliss became active in politics immediately upon his taking up residence in New York City. He became a warm friend of Chester A. Arthur, who at that time controlled the Republican organization. In 1884 he headed a citizens' committee which urged the nomination of Mr. Arthur to the presidency before the Republican convention of that year. In 1887 he was elected chairman of the Republican State Committee and in this office he served for two years. He was also president of the American Protective Tariff League for many years. In 1892 he was selected as treasurer of the Republican National Committee, and was selected again for the campaign in 1896. His financial management of this campaign is considered a model of efficiency. He raised a large fund and kept a strict account of every dollar expended. The campaign closed with a surplus in the treasury. As a reward for this work, President McKinley offered him the treasury portfolio, but he declined. He was afterwards persuaded to accept the office of Secretary of the Interior and he served in this office until 1898. In that year he returned to the conduct of his business, but in 1900 he was again called upon to act as treasurer of his party. He was again treasurer in 1904. An attempt was made to draw him into the controversy at that time brought about by the charges made by Alton B. Parker, the Democratic candidate, that large contributions had been made to the Republican campaign fund by corporations of the country. Mr. Bliss refused to make any public statement in regard to the matter. He did not serve again as treasurer of the committee. In 1896 an attempt was made to nominate him Vice-President on the ticket with McKinley, but he refused. He was many times mentioned as a possible candidate for governor of the State and mayor of New York, but would not consent to be placed in nomination for these offices. He was antagonistic to the policies of President Roosevelt, and with the ascendancy of these he ceased to take an active interest in politics. He was president of the Union League Club of New York City for several years. He was also president of the New York Hospital.

BLOXAM, WILLIAM DUNNINGTON. An American public official, formerly governor of Georgia, died March 15, 1911. He was born in Leon county, Fla., in 1835 and graduated from William and Mary College in 1855. In 1860 he was elected a member of the Florida House of Representatives. He served in the Civil War, rising to the rank of captain in the Confederate army. He was elected lieutenant-governor of Florida in 1876 and was secretary of state from 1877 to 1881. He served as governor from 1881 to 1886 and again from 1897 to 1901. In 1885 he was offered the appointment of minister to Bolivia, but declined. From 1890 to 1896 as state comptroller.

BOGERT, EDWARD STRONG. A medical director and rear-admiral, retired, of the United States navy, died February 16, 1911. He was born in Geneva, N. Y., in 1836, and was educated in the public schools of that town and of Brooklyn, N. Y. He studied medicine and was appointed assistant surgeon in the United States navy in 1861. In 1864 he was promoted to be past assistant surgeon and in 1866 to be surgeon. In 1882 he was appointed medical inspector and in 1889 medical director. He was retired in 1898 and in 1906 he was advanced to the rank of rear-admiral for services during the Civil War. From 1892 to 1895 he was in charge of the Naval Hospital in New York.

BOGGS, WILLIAM ROBERTSON. An American soldier, died September 15, 1911. He was born in Augusta, Ga., in 1829, and graduated from the United States Military Academy in 1853. He resigned from the United States army in 1861 and served in the Confederate army from its organization until it was disbanded in 1865, attaining the rank of brigadier-general. From 1863 to the close of the war he served as chief of the Trans-Mississippi Department. At the close of the war he became in succession architect and civil engineer, and was for five years professor of mechanics at the Virginia Mechanics College.

BOILERS. During the year three vertical water tube boilers of the Stirling type rated at 2365 horsepower at 10 square feet of boiler heating surface per horsepower, were installed in the electric generating station of the Detroit Edison Company and were under tests for efficiency during a period of six months. These boilers were specially designed to secure a saving of fuel, and general economy of steam production, and the combined efficiency of boiler and furnace was stated at from 76 to 80 per cent. The tests made were unusually thorough, and involved the weighing and measurement of 5000 tons of coal and 45,000 tons of water. These boilers consist of three top drums and two bottom drums, connected by four groups of tubes. The furnace is 14½ feet by 26 feet, with a grate area of over 400 feet, forming an effective boiler heating surface of 23,654 square feet. One of the boilers was fitted with Roney stokers and another with Taylor stokers. So large and important was this installation that a report on the tests made by Prof. D. S. Jacobus and presented to the American Society of Mechanical Engineers was one of the most important papers in this field printed during the year in its *Journal* (November, 1911). See also the article **BATTLESHIPS**.

BOILER EXPLOSIONS. The annual statistics

of boiler explosions in the United States for 1911 were compiled and published in *The Locomotive*, published by the Hartford Steam Boiler Inspection and Insurance Company. The number of explosions during the year was 504, involving the deaths of 223 persons and injuries to 420, or total casualties of 643. In 1879-1911 10,569 explosions have been recorded, involving the deaths of 9444 persons and injuries to 14,613, or a total of 24,057.

BOKHARA. A Russian vassal state in central Asia. Area, 83,000 square miles; population (1910), about 1,500,000. Capital Bokhara, with about 75,000 inhabitants. The ameer, Sayid Mir Alim Khan (born 1880), succeeded his father January 5, 1911. The Russian political agent (1911, Al. S. Somov) resides at Bokhara.

BOLAMA, ISLAND OF. See PORTUGUESE GUINEA.

BOLIVIA. An interior republic of South America. Sucre, the seat of the supreme court, is usually regarded as the capital; but the president resides at La Paz, where for a number of years the congress has held its sessions and the foreign diplomats reside.

AREA, POPULATION, ETC. The country consists of eight departments and two territorial divisions. At the close of 1910 the Congress authorized the erection of an additional department in the region of the upper Paraguay River, to be known as Los Chiquitos. Largely on account of the boundary disputes with Peru and Brazil, now in course of settlement, estimates of the total area differ widely; one estimate is 473,560 square miles; another, 567,600; a third, 605,400; and a fourth (given by the Pan American Union), 708,195. Estimates of population vary less than those of area since it is certain that vast regions, though little explored, are very sparsely peopled. The census of 1900 showed 1,744,568 inhabitants, and the estimate of 1908, 2,267,935. About one-half the population is Indian, and probably not more than one-eighth pure white. The great elevated plateau of western and central Bolivia, including some 40,000 square miles, contains most of the larger towns. On June 15, 1909, La Paz had 78,856 inhabitants; recent figures for other towns are: Cochabamba, 28,000; Potosi, 25,000; Sucre, 23,416; Oruro, 22,000; Santa Cruz, 20,535. Primary instruction is free and nominally compulsory. In 1910 there were 717 elementary schools, public and private, with 1299 teachers and 46,000 pupils; 18 secondary schools, with 126 teachers and 1631 pupils; and 17 institutions for superior instruction, with 65 teachers and 680 students. The state religion is Roman Catholicism.

PRODUCTION AND COMMERCE. Agriculture shows unsatisfactory development; crops include corn, rice, barley, and potatoes, but the vegetable product commercially most important is rubber. Bolivia depends mainly upon its abundant mineral resources, the chief of which are tin, silver, bismuth, and copper. In output of tin ore Bolivia ranks second in the world, the Straits Settlements being first.

Imports and exports are reported as follows, in thousands of bolivianos:

	1906	1907	1908	1909	1910
Imports	31,997	34,562	32,069	35,937	45,942
Exports	50,757	45,902	58,924	63,764	74,963

The leading imports include textiles, provisions, manufactures of iron and steel, and explosives.

The chief exports in 1909 and 1910 respectively were valued as follows in bolivianos: Tin, 31,654,109 and 37,006,503; rubber, 21,947,138 and 27,654,000; silver, 5,721,915 and 5,476,000; bismuth, 1,451,075 and 1,923,417; copper, 1,641,201 and 1,786,952.

Values (so far as available) of the trade with leading countries were as follows in 1909 (imports) and 1910 (imports and exports) in bolivianos:

	Imports 1909	Exports 1909	1910
United States	10,874,000	76,000	180,000
Great Britain	7,894,000	86,424,000	46,652,000
Germany	5,321,000	11,286,000	15,424,000
Chile	3,310,000	1,377,000	695,000
Peru	2,534,000	.....	.....
Argentina	1,691,000	727,000	400,000
Belgium	1,568,000	1,819,000	3,812,000
France	1,480,000	8,125,000	5,153,000
Brazil .....	.....	2,575,000	2,467,000

COMMUNICATIONS. In the summer of 1911, there were in operation 1022 kilometers (635 miles) of railway, and construction was being carried forward to various points. There is communication by rail (and by steamer across Lake Titicaca) from the Chilean port of Antofagasta to Oruro, Viacha, La Paz, Guaqui, and the Peruvian port of Mollendo. Another line connecting La Paz with the Pacific, and running from Viacha to the Chilean port of Arica, was expected to be open to traffic in 1912 (Bolivian section, 208 kilometers). Other lines under construction in 1911 were: Río Mulato to Potosí, 170 kilometers; Oruro to Cochabamba, 200; Uyuni to Tupiza, 200; total length, including some others, 896 kilometers. Of this total, 206 kilometers were open to traffic and are included in the 1022 kilometers mentioned above.

Telegraph lines (reported 1911), 5007 kilometers (3111 miles), with about 125 offices. There are over 200 post offices.

FINANCE. Complete and final figures of revenue and expenditure are not available. Estimated ordinary revenue and expenditure: 1908, 15,925,375 and 16,617,500 bolivianos respectively; 1909, 13,300,000 and 16,454,625; 1910, 13,540,000 and 13,887,435; 1911, 13,141,175 and 17,805,859. The greater part of the revenue is derived from import and export duties. Public debt (1910)—external, £1,965,350; internal, 3,154,640 bolivianos; floating, 7,659,212 bolivianos.

On September 14, 1906, a law was enacted providing for the adoption of the gold standard. The monetary unit is the boliviano, worth 38.93 cents (12.5 to the pound sterling).

ARMY. In 1911, as a development of the reorganization of the army which was started in 1907, some German officers with Colonel Kundt at their head undertook the revision and reorganization of the administrative training. Service nominally is compulsory. On a peace basis a standing army was maintained at about 3500 men, but the addition of the reserves and the territorial guard would bring the war effective to over 88,000. The organization of 1911 consisted of five infantry battalions, a cavalry regiment, and a regiment of mountain artillery armed with Creuzot shielded guns, while preparations were being made for

raising a second cavalry regiment and a regiment of field artillery.

Bolivia during the year 1911 purchased from Schneiders, in Europe, three batteries of field guns of Spanish pattern.

GOVERNMENT. By the constitution of October, 1880, the executive authority is vested in a president, who, with two vice-presidents, is elected for a term of four years. He is assisted by a cabinet of six ministers. The legislative power devolves upon a congress of two houses, the Senate (16 members) and the Chamber of Deputies (75). The president in 1911 was Eliodoro Villazón (for the term beginning August, 1909); first vice-president, Macario Pinilla.

HISTORY. During the year the cabinet was reorganized. A new department was formed on the Upper Paraguay River, with Puerto Suárez as its capital. A plan of military revision and administrative reorganization under German direction went into effect. See paragraph above on *Army*.

BOLIVIAN-PERUVIAN AGREEMENT. See PERU.

BOLL WEEVIL. See COTTON.

BOOKS, PUBLICATION OF. See LITERATURE, ENGLISH AND AMERICAN.

BOOTS AND SHOES. This industry in the United States during the year 1911 was in a state of considerable uncertainty owing to tariff legislation, actual and proposed. It will be recalled that in the Tariff act of 1909 hides were placed upon the free list with the general approval of the boot and shoe interests. In the House tariff bill of 1911 boots and shoes which had enjoyed a duty of twenty per cent. were put on the free list, but hides, a raw material, received a duty. This bill was vetoed by President Taft, and in his message he called particular attention to this condition. The boot and shoe industry during the year was threatened also by governmental investigation, or at least rumors of such investigation were freely circulated, and the alleged monopoly of shoe machinery corporations was a further disturbing feature. The larger manufacturers vigorously denied that any trust or combination controlled their product, or that prices were unduly high. They claimed that tariff protection was necessary to maintain the standard of wages, and that they were threatened with competition from English and other European factories which would prove disastrous. During the year the price of hides advanced, and it was thought that boots and shoes would advance in price accordingly.

The extent of the boot and shoe industry in the United States was shown in the census report of 1910 published during the year. In this report it was stated that the annual output of American shoe factories was 247,643,197 pairs of boots and shoes. Of these 93,888,892 were men's shoes, and 86,595,314 pairs were women's shoes. In the year 1909 the sum of \$117,092,000 was paid in wages of some 200,000 wage earners, and the value of the product was stated at \$512,798,000.

The American shoe manufacturer was extending his sales in all parts of the world. In the fiscal year 1880, less than 400,000 pairs of boots and shoes were exported; in 1890, 600,000 pairs; in 1900, over three million pairs; in 1905, over five million pairs; in 1910, over seven million pairs, and in the calendar year which ended in December, 1911, the number exceeded

eight million pairs, to say nothing of the one million pairs going to Porto Rico and Hawaii. These figures relate to boots and shoes of leather; while if to this those of india rubber are added, an additional three million is obtained, bringing the total number of American made boots and shoes passing out of continental United States in 1911 up to an average of a million pairs per month, against about a half million per annum twenty years previously.

Foreign exports of boots and shoes from the United States were greater than ever during the year 1911, a total of over \$56,000,000 for leather and manufactures of leather, representing a gain of five or six million dollars over 1910. In this was included nearly \$18,000,000 worth of glazed kid, which represented a virtual increase of \$1,000,000 over the previous year. Boots and shoes were exported from the United States to no less than eighty-five countries and colonies in the world; the value of boots and shoes exported, which had never reached as much as a million dollars per annum prior to 1896, exceeded twelve million dollars per annum and in 1911 amounted to about fifteen million dollars in value, including those sent to non-contiguous territory in the United States; and if to this we add the value of india rubber boots and shoes exported, we should have a total of about seventeen million dollars for boots and shoes of all kinds passing out of continental United States in the year ending December, 1911.

The West Indies and the Philippines take more than one-quarter of the exports of the United States, Cuba being the best customer, with exports valued at \$2,698,000 for the ten months ending October 30, 1911. Canada was second with exports valued at \$1,800,000 for the same period.

The exports of boots and shoes to England continued to fall off. It was said that the British shoe business was in better shape than ever, due to the reorganization of many of the large plants, and the use of improved machinery such as was found in American factories. The British manufacturers were awaiting with interest any change in the tariff with the hope that with further advantages they could develop export business to the United States.

The United Kingdom was the chief rival of the United States in supplying boots and shoes to the world. Her exports of boots and shoes were still greater both in total number of pairs and total value than those of the United States, but the growth in her case was far less rapid than that of the United States. The number of pairs exported from the United States in 1895 was 965,196, and in 1910, 7,810,903; the number of pairs exported from the United Kingdom in 1895 was 8,095,440; and in 1910, 13,039,656; the percentage of gain, in the case of the United Kingdom being sixty-one per cent. and in the case of the United States, nearly seven hundred and ten per cent. The value of leather boots and shoes exported from the United States, however, was more nearly identical with that of like exports from the United Kingdom, having been in the calendar year 1910, \$13,216,237, against \$14,744,969 for the United Kingdom, the average price per pair of those exported from the United States having been \$1.69, against \$1.13 for those exported from the United Kingdom.

As indicative of the shoe business at a single

New England centre, it may be stated that at Brockton, Mass., the shoe shipments for 1911 were valued at \$54,005,462.50 and amounted to 19,648,350 pairs packed in 785,534 cases. The average wholesale price was \$2.75 per pair, which marked a gradual increase over the average of 1909 of \$2.60. The Brockton increase of production over 1910 was \$134,257.70. The wages in the factories in the same year aggregated \$12,077,585.25, or an increase in aggregate earnings of \$270,650.85 over 1910.

BORDEN, ROBERT LAIRD. A Canadian statesman, who became prime minister as the result of the Conservative victory in the elections of September, 1911. See *CANADA, History*. He was born in Nova Scotia, in 1854. He adopted law as a profession and became the recognized leader of the bar in Nova Scotia. In 1896 he was persuaded, much against his will, to become a candidate for Parliament and was elected as one of the members for Halifax. In his youth his affiliations had been with the Liberal party, but he later became a Conservative. During his first term in Parliament he spoke seldom and generally upon questions which had a legal aspect. His ability, however, soon came to be recognized and in 1901 following the defeat of Sir Charles Tupper, in 1900, he was the most prominent candidate for leader of the Conservative party. He had no ambition for the office, but was finally persuaded to accept it. The difficulties of the position were great. In Quebec he was obliged to meet the great personal ascendancy of Sir Wilfrid Laurier, while in the western provinces and in Ontario he was comparatively unknown. Early in his leadership arose the question of granting provincial constitutions to the western territories and the control of education as between the provincial and territorial authorities. In 1875, under the territorial constitution, the Roman Catholic minority had secured the right to maintain separate schools in the territories. The Laurier government determined to secure this right under the provincial constitution. Mr. Borden, however, took the position that, subject to the right of appeal to the federal government, the provinces had the exclusive control over education. The result of this attitude was to strain his relations with the Roman Catholic hierarchy and the French people of Canada. He was also severely criticised for his acceptance of the salary which the Laurier government had a few years before provided for the leader of the opposition. In the general election of 1904 he suffered a severe blow in the loss of his seat for Halifax. At this time every constituency in his native province declared against his candidates. He wished to resign and was disposed to withdraw altogether from public life. He was dissuaded from this, however, and consented to accept a seat in Ontario and to continue in the leadership of his party. At the general election of 1908 he recovered the seat for Halifax, and his party obtained six out of the eighteen Nova Scotia seats in the House of Commons. This greatly strengthened his position. His aggressive opposition to the measure providing for reciprocity between the United States and Canada is discussed in the political sections of those articles.

BORNEO. An East Indian island, belonging partly to Great Britain, partly to the Netherlands. Estimated area, 293,500 square miles; estimated population, 1,680,000. See *BRITISH*

NORTH BORNEO; SARAWAK; DUTCH EAST INDIES; and ANTHROPOLOGY.

BORON. See **CHEMISTRY.**

BOSNIA AND HERZEGOVINA. Provinces (since September 5, 1908) of the Austro-Hungarian monarchy. Area, 19,767 square miles. Population (mainly Serbo-Croatian) in 1895, 1,568,092; census of 1910, 1,931,802, of whom 1,898,044 constituted the civil population and 33,758 the military. Among the civil population there were in 1910 20,651 marriages, 77,343 births, 52,010 deaths. The Mohammedans numbered in 1910, 611,884; Servian Orthodox, 824,021; Roman Catholics, 433,480; Evangelicals 6247; Greek Orthodox, 8097; Jews, 11,850; others, 94. Sarajevo, the capital, had (1910) 51,919 inhabitants; Mostar, 16,392; Banjaluka, 14,800; Tuzla, 11,333. There were in 1909 434 elementary, 978 lower, and 92 reformed Mohammedan schools, five gymnasia, two realschulen, eleven advanced female and nine commercial schools. There are Mohammedan and other seminaries for religious instruction, besides normal, technical, and industrial establishments. Education, though free, is not compulsory.

The soil is fertile; but though agriculture occupies about eighty-five per cent. of the population it is in a low state of development, despite government encouragement. Besides cereals, tobacco (a government monopoly) is raised, as well as potatoes, flax, hemp, grapes, and sugar beets. Sheep and cattle raising and lumbering are carried on. Livestock (1895): 233,322 horses, 1,416,394 cattle 1,447,049 goats, 3,230,720 sheep, 662,242 swine. Mining, carried on mainly by the government, is important. Coal output (1909), 696,114 tons; iron ore, 120,069; manganese, 5692. Miners employed, 3244. Output of metals: 49,062 tons of raw iron (valued at 3,417,443 kronen); 22,307 tons of wrought iron (3,103,031 kronen); 2329 tons of cast-iron manufactures (493,832 kronen). Salt output, 22,128 tons (2,456,241 kronen). The two provinces are included in the Austro-Hungarian customs territory. Estimated imports (1909), 139,538,540 kronen; exports, 122,979,368. Export of cattle, 85,485 head; horses, 12,306; sheep, 89,308; goats, 53,461. Value of timber export, 29,642,781 kronen; wine, 458,197. Railway lines in operation January 1, 1911, 1956 kilometers; telegraph lines, 4102; wires, 12,778; offices, 173; telephone lines, 472; wires 8288. Revenue and expenditure for 1908, 66,487,959 and 66,482,018 kronen respectively; 1910 estimate, 74,376,409 and 74,251,960; 1911, 79,129,475 and 79,535,715. The provinces are administered through the Austro-Hungarian minister of finance (1911, Stephen (Baron) Burian von Rajecz).

BOSTON. See **MASSACHUSETTS; BUILDING; and MUNICIPAL GOVERNMENT.**

BOSTON AND MAINE RAILROAD. See **NEW HAMPSHIRE.**

BOSTON OPERA COMPANY. See **MUSIC.**

BOSTON UNIVERSITY. An institution of higher learning at Boston, Mass., founded in 1869. The students enrolled in all departments of the university in 1911-12 numbered 1274. The faculty numbered 161. The most important event in the history of the university during the year was the election of Lemuel Herbert Murlin, LL. D., president, to succeed William Edwards Huntington, LL. D. Rev. L. J. Birney, S. T. D., succeeded Samuel L. Beiler,

Ph. D., as dean of the School of Theology, and Alonzo R. Weed, acting dean of the School of Law, was chosen dean to succeed Melville M. Bigelow, LL. D., who still remains on the Board of Lecturers of Law. The Department of Agriculture, which was not organically related to Boston University, but was only in friendly affiliation, has now been entirely separated. To the general endowment there was added during the year \$400,000, and an addition to the hospital facilities in the Medical School was erected at a cost of \$250,000. The library contains about 35,000 volumes.

BOTANY. MEETINGS. The year 1911 was an active one in botanical fields. The American Association for the Advancement of Science met in Washington, D. C., December 26-30, with Dr. C. E. Bessey, professor of botany of the University of Nebraska, as president. Section G, Botany, had for its presiding officer Prof. F. C. Newcombe. The Botanical Society of America, with Dr. W. G. Farlow as president, the Phytopathological Society, with Dr. A. D. Selby as president, and the American Breeders' Association, with Hon. James Wilson, Secretary of Agriculture, as president, were some of the affiliated societies that met at the same time for the reading and discussion of botanical papers. The British Association for the Advancement of Science met at Portsmouth and the French Society at Dijon during the summer.

A bacteriological museum for the exchange of cultures has been established at the American Museum of Natural History. *Phytopathology*, a journal of plant disease, was established during the year. The legislation providing for an inspection of plants to prevent the introduction of plant diseases into this country failed of enactment by Congress last year. Canada, under recent legislation, has prohibited the importation of potatoes from Newfoundland and the islands of St. Pierre and Miquelon on account of the black wart disease. A plant disease inspection for nursery stock has been organized in France under the minister of agriculture. In Great Britain the Board of Agriculture controls this matter and it has proclaimed a number of diseases.

Investigators in the different fields of botany have issued many valuable contributions to botanical literature. A large number of papers of cytological, morphological, and taxonomic interest have appeared, and the activity in plant breeding, plant physiology, and plant diseases has been very great.

PLANT BREEDING. Shull has described the methods followed in hybridizing corn and emphasized the complex hybridity of many combinations that have been made. East and Hays have given an account of four years' study on inheritance in maize, which showed the behavior to be along strictly Mendelian lines. Collins has shown the increased stimulus of crossing corn. Emerson found in a study of F₁ and F₂ generations of beans that there was more complexity in size and shape of beans than in their color. Experiments with peas have been described by Vilmorin, Waugh, Shaw, and others, and Spillman has described the inheritance of color in cowpeas. Belling has reported on experiments in crossing velvet beans and Lyon beans. Andrews and Gates have each described twin hybrids in *Cenothera*. Shull has described some mutants of *Lychnis dioica*, and Saunders reports singleness dominant over

doubleness in petunias. Singles crossed with pollen from double-flowered petunias gave doubles in the first generation. Humbert has given the results of a quantitative study of over 7500 plants of *Silene noctiflora* to show the variation in pure lines. Salaman found in a study of potatoes that purple color in tubers is dominant to red and red to white. Crompton reported experiments with barley and Henry has found Mendelian segregations in various elms. Blaringhem called attention to work of Naudin on hybridizing various plants in 1861, from which he deduced principles applicable to all hybrids. Campbell made a study of the so-called graft hybrids of *Solanum* and found *S. darwinianum* to be the only one that is a hybrid in the strict sense.

STUDIES OF SOIL ORGANISMS. Much attention is being given to the study of soil organisms and to the assimilation of free atmospheric nitrogen. Conn, studying at Cornell University, found the bacterial content of some soils greater in the winter season than at other times, and that certain types appeared in numbers then that were less abundant at other seasons of the year. Kappen claims that bacteria are necessary for the reduction of calcium cyanamid and lime nitrogen before they are available for higher plants. Kellerman has described the different groups of nitrogen-gathering organisms and their relation to nitrogen in the soil. De Kruijff reports a new variety of *Torula* as capable of fixing free nitrogen. Krainski found the greatest amount of nitrogen fixation by soil organisms took place in damp but not wet sandy soils. Edwards says that *Pseudomonas radicola* retained its vitality for more than four years in cultures. There are many claims that plants other than leguminous ones can fix free nitrogen from the air, but Duggar and Knudson report studies of over 400 cultures of fungi, and only one species of *Aspergillus* indicated any fixation of nitrogen. Kövessi claims that Jamieson's theory of nitrogen absorption through special hairs on plants is incorrect. Greig-Smith claims the existence of bacteriotoxins in soils which influence plant growth. Heating such soils destroys the less resistant bacteria, dissolves the aggricere, and permits the more resistant species to multiply rapidly. Helene Krzemieniewska has found that potassium, calcium, magnesium, phosphorus, and sulphur are essential to the development of *Azotobacter*, and that potassium, sodium, and magnesium compounds beyond certain concentrations act injuriously.

PLANT PHYSIOLOGY. Willstätter, Marchlewski, and their students are continuing their studies on the nature of chlorophyll, and report additional analogies between the chemistry of chlorophyll and that of blood. Ivanowski believes that the decomposition of carbon dioxide takes place in a colloidal form of chlorophyll. Combes claims that the appearance of anthocyanin in plants is correlated with an accumulation of oxygen in their tissues. The variation in the amount of gas is regulated by chlorophyll activity. Keegan has stated that the red and purple coloring matter in leaves is probably correlated with a diminution in their albuminoids. As a result of a study of some 800 plants, Roshardt claims that the movement of water in plants is greatly assisted by the living cells. Schroeder has confirmed the existence in cereals of a selective permeable

membrane. Kuyper reports on the effect of temperature on limiting respiration and says that the harmful effects of increasing temperature rise with an increase in starch content and fall with an increase in protein. According to Lindet, dextrose in plants is associated with respiration and levulose with growth. Grafe has shown that formaldehyde can be assimilated by green plants, converting it into reducing sugars. The limiting factor of assimilation in plants is the internal temperature of leaves, provided the stomata are open and the temperature does not exceed 25° C., according to Thoday. By experiments under continual electric light, Dangeard has found that photosynthesis is practically confined to the principal absorption bands of chlorophyll. Stoklasa has found that ultraviolet rays greatly stimulate photosynthesis in etiolated plants, and that under the action of such light the synthesis of carbohydrates from carbon dioxide and nascent hydrogen can be brought about. Lubimenko claims that the red portion of the spectrum aids in the decomposition of carbon dioxide and the elaboration of the first products of photosynthesis, and that the blue violet rays are employed in the fixation of organic materials elaborated by the green cells. He also claims a definite light optimum for the production of dry matter by green plants. Usher and Priestley have repeated their investigations described a few years ago, and they claim that hydrogen peroxide and formaldehyde are the primary products of the photolysis of carbon dioxide. The liberation of oxygen from the peroxide is effected through the action of catalase.

A number of investigators have reported upon the sources of nitrogen in plants. Pantanelli and Severini and Kelley have shown that plants can directly utilize ammonium salts where nitrification is precluded. Prianishnikov claims that barley can form asparagin directly from ammonium compounds. Molliard says that plants can obtain their nitrogen from a number of organic nitrogenous compounds. Ravenna and others have found that hydrocyanic acid is a stage in nitrogen nutrition. Others have shown its presence in plants as a glucosid or otherwise. Maize has been found by Lefevre capable of assimilating amids under certain conditions. Richter found that translocation of elaborated material from leaves was closely associated with temperature conditions, and Harter from six to fourteen per cent. starch in dropped leaves in autumn. A large number of papers have shown the stimulating effect of various products on plant activity. Acqua showed that radium affected plants and parts of plants very differently. Roots are quite susceptible to its action, but aerial parts are less so. Photosynthesis and protoplasmic movement are not checked. Mazé claims that preliminary drying will stimulate immature seeds to germinate. Stoklasa found that small amounts of manganese and alumina stimulated photosynthesis. Schneider-Orelli says that *Medicago* seeds can stand dry temperatures of 100° C. for seventeen hours without being killed. Warthiadi found that a ratio of lime to magnesia of one to one gave the best results with cereals. The lime factor is said to influence grain production and magnesia that of straw. Lloyd in his study of the ripening of persimmons claims that the insolubility of tannin is due to its colloidal formation in the

ripe fruit and that carbon dioxid would hasten ripening, especially when present under pressure.

PLANT DISEASES. There has been great activity among investigators of plant diseases. Stone has described a number of diseases due to malnutrition. Molisch has reported upon injury to plants by tobacco smoke. Scott has found a spotting of stored apples due to arsenical sprays. Swingle and Morris have reported arsenical injury to apple and other trees. Several have found that the vapors and dust arising from tarred roads are injurious to plants. Pierre and Parish have demonstrated the injury by cement dust to various persistent leaved plants. Butler claims that the California vine disease is largely due to disturbances in water conduction.

Arthur, Klebahn, Fraser, and others have proved the alternate hosts for a number of additional heteroecious rusts. Pritchard has shown that wheat rust can pass from crop to crop as mycelium and rust pustules in seed, and Johnson shows that the timothy rust can winter over on the grass as far north as Washington, D. C. Freeman and Johnson have published an extensive study of the cereal rusts of the United States. Evans in South Africa found hybrid wheats more susceptible to rust than their parent stocks. Bolley has elaborated on his theory of soil infection and claims that the depreciating yields of grain are, to some extent at least, due to fungus infection from the soils, and he reports having found spores of a number of the most destructive parasites of cereals in soil where grain had been grown. Dr. E. F. Smith has published the results of six years' study of the crown gall of plants due to *Bacterium tumefaciens*, and he points out some analogies between the behavior of this disease in plants and cancer in the human body. Hedgcock has studied the same disease in orchards and finds it widely spread, but its importance in established orchards, especially in the eastern part of the United States, he believes is overestimated. Barre, Edgerton, Lewis, and others have proved conclusively that the cotton anthracnose is carried over in the seed. The wart disease of potatoes (*Chrysophyctis* or *Synchytrium endobioticum*) continues to attract much attention in Europe, especially in England, where marked differences in the susceptibility of varieties are reported. The disease has been reported in Newfoundland, but has not yet been found in the United States. In Germany much study is being given to the leaf-roll disease of potatoes, and it seems probable that several diseases due to different causes are confused under this name. Appel and Wollenweber are making a study of the Fusariums, and it is probable that a form of leaf roll is due to some species of this genus. Vaihla claims that it is due to a fungus, which he has named *Solanella rosea*. Griffon claims that a number of wet rots of vegetables are due to *Bacillus fluorescens* and that a number of bacteria that have been described as connected with these troubles all belong to the same species. Higgins claims that the cotton wilt is due to *Fusarium vasinfectum* and not to *Neocosmospora*, as has been reported. Fawcett, Berger, and others have shown that the gummosis of citrus, plum, and peach trees is due to *Diplodia natalensis*, an organism first described from South Africa and recognized in

Florida and elsewhere. Much attention is being given at home and abroad to diseases of timber trees.

The chestnut bark disease (*Diaporthe parasitica*) is just now giving much concern in the eastern part of this country. The State of Pennsylvania has appropriated \$275,000 for its eradication, and Congress gave \$5000 for a study of the situation. Clinton claims that drought and cold winters aid in making the trees more liable to attack. In Europe a black canker of chestnut trees has become of importance, especially in the south of France and neighboring countries. It is believed to be due to a species of *Melanconis*. The oak mildew in southern Europe continues important, but the true relationship of the fungus is still unknown. Spaulding has given an account of the introduction of the white pine blister blight (*Peridermium strobi*) into this country from Europe on imported pine seedlings. It is thought that all the diseased material has been traced and destroyed. It had found its way into about a dozen States and Canada.

Studies have been reported of diseases of a number of tropical plants of economic importance. Johnson claims that the bud rot of coconuts is caused by *Bacillus coli*, or a form indistinguishable from it by the present methods of research. Essed claims that the Panama disease of bananas is due to *Ustilaginoidella musæperda*. Rorer has described *Bacillus musæ* as causing a similar disease in Trinidad. Others claim that the diseases are due to species of *Fusarium*. Petch has described a canker disease of Para rubber, root diseases of rubber, tea, black wattle, etc. Butler has found a disease of palms in India which he attributes to *Pythium palmivorum*. Bessey has described nematode diseases of plants, more than 450 species of plants being listed as liable to attack.

Newly recognized diseases of plants have been described as follows: Edgerton, two diseases of figs; Scott, a new fruit spot of apples associated with arsenical injury; Hedges, a gall-producing fungus on oranges and limes; Salmon, a new disease of mangolds; Smith, a cottony mold of lemons; Manns, two new cabbage diseases; Fawcett, a stem end rot of oranges; McCulloch, a bacterial disease of cauliflower; a new bacterial disease of tomatoes in Italy; a foot rot of asparagus in the same country; a serious disease of coffee in Java; a cotton disease called curly leaf in Africa.

THE CONTROL OF PLANT DISEASES. Investigations are in progress for the control of plant diseases in many countries. In Vermont a twenty-year experiment in spraying potatoes with Bordeaux mixture has been concluded and an average yearly gain of sixty-four per cent. due to the spraying is reported. In addition to protecting the plants against fungi, they were stimulated to greater production. Experiments in Michigan and New York have shown that Bordeaux mixture is a specific for the prevention of grape black rot. That injury is liable to follow the use of Bordeaux mixture under some conditions has been known for several years. Groth claims that in the case of peaches it is due to an excess of carbon dioxid evolved by the leaves, resulting in a greater solution of the copper. Ballou claims that injury to apple trees is inversely proportional to their vigor. McAlpine recommends a special formula

in which the amount of copper sulphate is greatly reduced. In seeking for a substitute for Bordeaux mixture a number of chemical compounds and mixtures have been tested, and the lime-sulphur mixture, first used against scale insects, has been found to have remarkable fungicidal effects. It can be safely used on peach trees and for the prevention of most apple diseases. Scott advocates its use for the control of peach diseases and for apple scab, fruit and leaf spot, and rust, but for bitter rot Bordeaux mixture still gives the best results. Under certain conditions, especially when used with some arsenicals, some injury has been noted. In France dilute solutions of nitrate of silver are successfully employed, especially against the downy mildew of the grape. Stevens has described a method for the control of a lettuce disease due to *Sclerotinia*. From Italy comes the suggestion of the use of sand in tobacco seed beds for controlling the root rot. Volck reports the inefficiency of all the common fungicides for the control of apple mildew in California.

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BOTHA, General LOUIS. See SOUTH AFRICA, UNION OF.

BOURBON. See RÉUNION.

BOUTHILLIER-CHAVIGNY, CHARLES MARIE CLAUDE, Marquis de. A French lecturer and educator, died July 11, 1911. He was born in Paris in 1857. He removed to Canada when he was about 25 years of age and for twenty-two years lectured throughout the province of Quebec on topics of educational interest. About three years previous to his death he removed to Boston and there became prominent as a lecturer. He had received the appointment to a professorship at Harvard University, to take place in the fall of 1911.

BOVINE TUBERCULOSIS. See VETERINARY SCIENCE.

BOWDITCH, HENRY PICKERING. An American physiologist, died March 13, 1911. He was born in Boston in 1840 and graduated from Harvard College in 1861. In the same year he enlisted in the Federal army and served throughout the Civil War, rising to the rank of major. From 1868 to 1871 he studied physiology in France and Germany. He was assistant professor in the Harvard Medical School from 1871 to 1876, professor of physiology from 1876 to 1893, and was George Higginson professor of physiology from 1903 to 1906. From 1883 to 1893 he was dean of the Medical School. He

was a member of many learned societies, both American and foreign. His published writings include *The Growth of Children* (1877); *Hints for Teachers of Physiology* (1899); *Is Harvard a University?* (1890), and *Advancement of Medicine by Research* (1896). He also contributed many papers on physiological subjects to medical journals.

BOWDOIN COLLEGE. An institution of higher learning at Brunswick, Me., founded in 1794. In 1911-12 there were 333 students enrolled in the academic department and eighty-three in the medical department. The academic faculty numbered twenty-five, and the medical fifty-three. The productive funds of the college amounted to \$2,126,832. The total income in 1910-11 was \$129,645. The library contains about 100,000 volumes. The president is William DeWitt Hyde, D. D.

BOWLING. The eleventh annual tournament of the American Bowling Congress was held at St. Louis, January 27 to February 7. The individual championship was won by J. Blouin of Chicago (681). M. Knox of Indianapolis (670), finished second, and O. Lange (656) of Watertown, Wis., third. The two-men team contest was won by W. Hartley and L. Zeiler of East Liverpool, Ohio, who rolled 1246. In the five-men team event, the Flenner of Chicago won with a score of 2924. The all-event (nine games), was won by James Smith of Buffalo, who made a total of 1919.

The fifth annual tournament of the National Bowling Association was held at Buffalo, February 25 to March 18. The winners and scores were: Individual, Joseph West, London, Ontario, 694; two-men team, Kelsey-Johnson, New Haven, 1355; five-men team, Bonds of Cleveland, 2969. This five-men score breaks the record of 2962 pins made by the Lipmans of Chicago in 1909. The two-men team score also established a new record.

BOXING. The passing of the Frawley bill by the New York legislature was responsible for an unusually large number of boxing bouts in and about New York City during 1911. There was much trouble at the outset in enforcing the law, and the first contest held in Madison Square Garden was accompanied by considerable disorder. The boom in the sport in New York spread throughout the country, and more boxing contests were held than in any previous year. No new champions developed, however. "Jack" Johnson remained supreme in the heavy weight class, "Ad" Wolgast in the light weight class, and Johnny Coulon in the bantam class. The welter weight throne is vacant, as are those of the middle weight and light heavy weight classes. Johnson failed to box during the year. The showing made by other heavy weights was not good enough to indicate that the negro will have much trouble in defending his title for at least another year. The most promising white heavy weight developed during the year was James Flynn of Pueblo, Colo.

The boxing championships of the Amateur Athletic Union were held at Boston on April 10. The results of the final bouts were: 105-pound class, John J. Fallon of Roxbury, Mass., defeated Frank Brogan of Lawrence, Mass.; 115-pound class, Thomas Reagon of East Boston, Mass., defeated W. Adams of Toronto, Canada; 125-pound class, Frank Huftnagel of Brooklyn, won by default. A. Kaufman of New York, breaking his hand in the semi-final; 135-pound

class, James Jarvis of New York, defeated Frank McGarry of New York; 145-pound class, John Fisher of New York, defeated "Ted" Hodgen of Somerville, Mass.; 158-pound class, Napoleon Boutillier of Boston, defeated John H. Craige of Philadelphia; heavy weight class, John Severin of Boston, defeated Joseph Burke of Boston.

BOYCOTT. DANBURY HATTERS' CASE. This began in 1902 when a strike was ordered in the shop of Loewe & Company at Danbury, Conn., for the purpose of maintaining the closed shops. After various stages the case reached the Supreme Court of the United States in 1908, which declared a boycott illegal under the anti-trust law and authorized the company to sue for damages under that law. This suit was brought in the United States Circuit Court in Connecticut in 1909. The judge ordered the jury to file a verdict for the plaintiff, leaving the jury the sole function of determining the amount of damages. In February, 1910, the jury placed the damages at \$74,000, an amount which would be trebled by the provisions of the anti-trust law. This fine was then levied upon the individual union members, their property being attached to guarantee payment. This decision, had it been allowed to stand, would have been one of the most severe blows ever given labor unions in this country. It rendered all individual members by virtue of their membership liable for the acts of agents of the union, trade unions being unincorporated bodies.

The case was taken to the United States Circuit Court of Appeals. This court reiterated the opinion of the Connecticut Supreme Court that a boycott which prevents a manufacturer from producing goods for interstate trade, or which prevents his customers in other States from selling or purchasing his articles, is an obstruction of interstate commerce and therefore a violation of the Sherman law. But on the point of the responsibility of the individual members of a trade union for the acts of the union's agents, the position of the lower court was reversed. Justice Lacombe, who wrote the decision, declared that the mere fact of membership is not of itself sufficient to render the individual members responsible for the illegal acts of their agents. He held that the question of whether the defendants had made themselves responsible by their express or tacit approval of such acts should be submitted to the jury. This decision protects sufficiently the thrifty members of trade unions from danger of loss of property as the result of the actions of trade union officials; only when directly connected with a boycott conspiracy can they individually be sued for damages.

The American Anti-Boycott Association repaid to the American Federation of Labor \$5348, the costs of the appeal to the Circuit Court of Appeals. It then asked that the case be retried in the Circuit Court in Connecticut.

SECONDARY BOYCOTT. American courts have very generally taken the position that a secondary boycott, that is, a combination against a second party to compel a third party to do something which he does not wish to do, or to restrain from doing something which he wishes to do, is illegal. This position was the basis of an injunction issued in January, 1911, by Judge Blackmar of the New York Supreme Court against the United Brotherhood of Carpenters

and Joiners of America, and the Amalgamated Society of Carpenters and Joiners of America. These unions in the process of extending their control by an almost nation-wide movement, had endeavored unsuccessfully to unionize the shops of the Newton Company of Brooklyn. They then notified the builders of New York City and elsewhere where the product of this company was sold, that Newton Company material would not be handled, except under strict union conditions; they then proceeded to call strikes against those builders who used the company's material. The by-laws of the unions imposed fines upon members who worked upon materials produced by non-union carpenters. So extensive was this movement that 200,000 union carpenters were opposed by the associated plaintiffs who supported the Newton Company. This status, however, had been preceded by strikes and boycotts, a number of which were successful in forcing employing carpenters and builders to bind themselves not to use material produced by non-union labor. Judge Blackmar granted a permanent injunction restraining the unions from ordering such strikes, holding that, although strikes are in themselves lawful, a combination constituting an attempt to boycott was illegal. The case was then taken to the Circuit Court of Appeals, where Judge Coxe affirmed the injunction because "the right of every American citizen, whether employer or employee, to gain an honest livelihood by his own toil and endeavor is inherent in our organic law, and should be protected by all the power of the government." He held that an injunction against a strike is not the same thing as a condemnation to involuntary labor, or to labor under conditions deemed unfair. On the contrary, an injunction against a strike to enforce a secondary boycott gives a guaranty of the protection of the law to those willing to work and satisfied with their conditions of employment. The question involved in this case was not a matter of just or unjust conditions of employment, but the more fundamental question of the right to labor as a non-unionist and the right to carry on business under non-unionist conditions.

For the cases growing out of the famous boycott against the Buck's Stove and Range Company, see **LABOR, AMERICAN FEDERATION OF.**

BOYNTON, GEORGE B. An American soldier of fortune, died January 19, 1911. Although he went under the name of Boynton during his life, it was known that was not his proper name. He was born in New York City in 1842. He early showed indications of an adventurous disposition and was about to enter the United States Naval Academy at the outbreak of the Civil War. He enlisted, but his discharge was bought by his father. He was sent to an uncle in Illinois and enlisted in a cavalry regiment there. He took part in several engagements and was severely wounded. He left the army and narrowly escaped lynching as a Copperhead. He was later sent to capture contraband goods sent from Cincinnati, and on this expedition captured Belle Boyd, the famous Confederate woman spy. In the latter days of the war Boynton purchased a vessel with which he successfully ran the blockade from Bermuda to Southern ports. At the close of the war he joined James Fisk, the notorious financier of New York City, in the purchase of a distillery. This promised to be a successful enterprise, but

Boynton yielded to his love of adventure and became a filibuster in the Ten Years' War in Cuba. In this he several times narrowly escaped capture. In 1868 he began to supply the Spanish pretender, Don Carlos, with arms from England. The latter paid him £28,000, and then is said to have plotted to have him killed and robbed. He was warned in time and escaped. In 1870 he supplied arms from New York to Guzmán Blanco, president of Venezuela. For many years he was chief of Blanco's secret service. He secured leave of absence and re-organized the army of Santo Domingo. While there he was captured by the insurrectionists and sentenced to be shot. His life was saved only by the sign of a secret order to which he belonged. After quiet was restored in Venezuela he fitted out a vessel with Francis Lay Norton, another adventurer, and went to Chinese waters to prey on pirates. While in the waters about Borneo and the Malay Peninsula, he protected several vessels against pirates. In 1879 he again returned to South America where in the war between Chile and Peru and Bolivia he ran the blockade and delivered a cargo of munitions of war at Lima, Peru. He afterwards took part in the revolution in Haiti. In 1890 he was engaged by President Floriano of Brazil to blow up the *Aquidaban*, the flagship of Admiral Mello, leader of the insurrection. This was to have been done with a dangerous torpedo which he had invented for use against the Chinese pirates. His vessel was flying the British flag and after his plans were all made he was captured by the British ship, *Sirius*. He set up the defense that Mello was a pirate, but was kept a prisoner of war on the United States ship *Charleston*, for two months. At the end of this time he was sent to the Brooklyn Navy Yard and released. In 1895 he became chief of the secret service for President Crespo of Venezuela and was at the same time general manager of the Orinoco Corporation with vast concessions. In 1907 he returned to New York and was arrested for having in his possession dies for counterfeiting Venezuelan coins. His associates escaped punishment on the grounds that they were financing the revolution, but Boynton was sent to Blackwell's Island. He was, however, pardoned by President Roosevelt after serving three months. From this time until his death, Captain Boynton lived quietly in New York City. In addition to his adventurous career in real life, Boynton figured in fiction. Richard Harding Davis utilized much of the material given him by Captain Boynton in several of his works, and he was the hero of *The Beautiful White Devil*, by Guy Boothby. What purports to be the real story of his life was published in 1911.

BOY SCOUTS OF AMERICA. This organization, which has had a remarkable growth since its beginning in 1908, has for its general purpose the training of boys between the ages of twelve and eighteen years in self-reliance, manhood, and good citizenship. The idea for such a movement was originated in England by General Sir Robert Baden-Powell, and almost at the same time the scout idea sprang up in America. Two similar organizations, founded respectively by Daniel C. Beard and Ernest Thompson-Seton were combined under the general title, Boy Scouts of America. The aim of the Boy Scouts is to supplement the various existing agencies for education and to

promote the ability of boys to do things for themselves and for others. The important factor in the formation of bands of scouts is the scoutmaster. He must be a person of influence and possess those qualities which boys respect. The scoutmaster has general charge of the organization and training of the Boy Scouts. During 1911, 4680 new scoutmasters were commissioned, making a total of 6000 men, who voluntarily gave their services as scoutmasters and assistants. In 1911 264 local councils for scouts were organized and 153 scoutmasters were appointed. These officers gave all or part of their time to the movement. In the summer of 1910 the organization was perfected and a committee on permanent organization was appointed. This committee invited men of national reputation and with experience in other organizations to serve as members of the national council, which, through an executive board, was given full power and authority to direct the movement. The chairman of this committee is Ernest Thompson-Seton. The total number of local councils at the end of 1911 was 264. These councils are composed of prominent men in the respective neighborhoods, including representatives of different creeds and sects, as well as all organizations dealing with boys.

An analysis of the application blanks of 1500 scoutmasters shows 463 clergymen, 110 teachers, 76 students, 74 superintendents of schools, 41 lawyers, and 40 physicians. The officers of the Boy Scouts in 1911-12 were as follows: Honorary president, William H. Taft; honorary vice-president, Theodore Roosevelt; president, Colin H. Livingstone; chief scout, Ernest Thompson-Seton; national scout commissioners, Daniel C. Beard, Adj.-Gen. William Verbeck, and Col. Peter S. Bomus; treasurer, George D. Pratt. Another organization known as the American Boy Scouts has no connection with the Boy Scouts of America.

BRACKETT, ANNA CALLENDER. An American educator, died March 18, 1911. She was born in Boston in 1836 and graduated from the State Normal School in Framingham in 1856. After some experience in teaching she returned to that institution as a teacher. In 1859 she became vice-principal of the Girls' High and Normal School of Charleston, S. C. At the outbreak of the Civil War she returned to the North and became principal of the City Normal School of St. Louis, where she remained for nine years, doing effective work. In 1872 she established a school for girls in New York City. This school was the first in New York to demand from every student some study of Latin. It was also the first to place German in the regular course of study. In addition to her professional work she was engaged in writing on educational and other topics. In 1874 appeared her *Education of American Girls*. Two years before she had published a translation of Rosenkranz's *Pedagogies* under the title *Philosophy of Education*. This was revised and reprinted in 1886. She made a translation of Hegel for her own use. She wrote many poems, which appeared in leading journals and magazines. She was for years an important contributor to the *New York Nation*.

BRADFORD, AMORY HOWE. An American Congregational clergyman and editor, died February 18, 1911. He was born at Granby, N. Y., in 1846, and graduated from Hamilton

College in 1867. After graduating from Andover Theological Seminary, in 1870, he took a post-graduate course at Oxford. He was ordained to the Congregational ministry in 1870 and in the same year became pastor of the First Church of Montclair, N. J. He occupied this pastorate until shortly before his death. From 1892 to 1899 he was associate editor of the *Outlook*, and during 1892-3 was lecturer at Andover Theological Seminary. He was first secretary and second president of the American Institute of Christian Philosophy. In 1896 he was a member of the deputation sent by the American Board of Commissioners for Foreign Missions to inspect missions in Japan. In 1901 he was moderator of the National Congregational Council and in 1904 was president of the American Missionary Association. Dr. Bradford was a notable figure in the councils of the Congregational church in the United States and Europe. Among his published writings are *Spirit and Life* (1888); *The Pilgrim in Old England* (1893); *Heredity and Christian Problems* (1895); *The Sistine Madonna* (1897); *The Art of Living Alone* (1899); *The Age of Faith* (1900); *Messages of the Masters* (1902), and *Ascent of the Soul* (1902).

BRADFORD, GAMALIEL. An American publicist and banker, died August 21, 1911. He was born in Boston in 1831 and was the fifth of the name in regular succession. He was descended in the eighth generation from William Bradford, governor of Plymouth colony. He prepared for college in the schools of Boston and graduated from Harvard College in 1849. He entered the banking house of Blake Brothers and Company, Boston, and in 1858 was admitted as a partner. He retired from active business in 1868 and devoted himself to the study of political science and theory and practice of modern popular government, especially in its relation to the United States in federal, State, and municipal government. Before the Civil War he took an active part in the anti-slavery movement. In 1880 he became more interested in municipal and State governments and paid much attention to the Boston city charter of 1885 and the New York City charter in 1884. Mr. Bradford was independent in politics. He acted with the Republican party until 1884, when he left it because of its nomination of James G. Blaine for the presidency. Thereafter he acted with the Democratic party. After the Philippine Islands had been ceded to the United States by Spain he became an anti-imperialist and was an active protestant against the policy of the government toward the people of the islands. In 1901 he was a candidate for governor of Massachusetts, but failed to receive the nomination. He failed again in 1902. His issues were trusts, imperialism, and foreign alliances. Shortly after this he retired from active participation in politics. He was the author of *The Lesson of Popular Government* (1898). He also wrote many monographs and contributed articles to periodicals and newspapers.

BRADY, FRANCIS XAVIER. An American Roman Catholic clergyman and educator, died March 13, 1911. He was born near Gettysburg, Pa., in 1857. In 1873 he entered the Society of Jesus. He studied philosophy and science at Woodstock College, Maryland, from 1876 to 1879, and theology from 1884 to 1886. From 1879 to 1881 he was professor in Gonzaga Col-

lege, Washington. He was ordained a priest in 1886 and from that year until 1892 he edited several religious periodicals and was director of the Sacred Heart League of the United States. From 1892 to 1895 he was vice-president of Loyola College, Baltimore, and from 1895 to 1908 was pastor of St. Ignatius's Church in that city. From 1908 to the time of his death he was president of Loyola College. He was author of *Life of St. Aloysius* (1887); *The Holy Hour* (1890); *Manual of Bona Mors* (1890), and *The Great Supper of God* (1901).

BRANDEIS, LOUIS D. See CONSERVATION.

BRANDY. See LIQUORS.

BRAZIL, UNITED STATES OF. The largest republic of South America. Capital and largest city, Rio de Janeiro.

AREA, POPULATION, ETC. The estimated area of the twenty states and federal district is 3,218,139 square miles. The census of 1900 showed 17,318,556 inhabitants. In addition, the Acre territory, acquired from Bolivia in 1903, has about 73,720 square miles and 65,000 inhabitants. The total estimated population in 1908 was 20,515,000. Estimates of municipal populations in 1910 (probably not very accurate) were: Rio de Janeiro, 1,000,000; São Paulo, 400,000; Bahia, 350,000 Pará (Belem), 200,000; Pernambuco (Recife), 150,000; Porto Alegre, 100,000; Ceará, 50,000; Manaus, 50,000. The census to be taken in December, 1910, was indefinitely postponed for lack of sufficient appropriations.

From 1820 to the end of 1910 immigrants numbered 2,831,186, of whom 1,254,871 were Italians, 733,647 Portuguese, 340,605 Spaniards, and 105,321 Germans. In the ten years 1890-99 immigration was 1,208,700; in 1900-09, 648,800. In 1907 there were 67,786 immigrants; in 1908, 94,695; in 1909, 85,416; in 1910, 88,564; of the last number, 30,857 were Portuguese, 20,843 Spaniards, 14,163 Italians, 5257 Turkish Arabians, 3902 Germans, 2636 Austro-Hungarians, and 2462 Russians.

Primary instruction, which is not compulsory (though nominally so in some parts of the country), has made considerable progress. In 1909 public and private primary schools numbered 11,147, with 565,922 pupils, and secondary schools 327, with 30,258 pupils. There is no real university, but various establishments offer some opportunity for technical and professional instruction. Roman Catholicism is the prevailing religion, but ecclesiastical equality obtains.

INDUSTRIES. Agriculture continues and will long continue the principal source of Brazilian wealth. The chief crop is coffee, grown in the states of Espírito Santo, Minas Geraes, and Rio de Janeiro, but mostly in São Paulo. Constant effort is made to maintain the price of coffee, by imposing an additional tax on exports over a certain amount, by encouraging consumption, and, in São Paulo, by prohibiting further extension of coffee plantations. The cacao crop is produced almost entirely in the state of Bahia, about half of the sugar in Pernambuco, and tobacco in various states, but especially Bahia. Other crops are cotton, rice, corn, yerba maté, and bananas. As an export product rubber, from the Amazon valley, ranks next to coffee in value. Cattle-raising is important in the south, in the states of Matto Grosso, Minas Geraes, Rio de Janeiro, and São Paulo. The mineral resources are considerable, but for the most part little developed. A gradual increase

is shown in manufactures, of which by far the most important at present is cotton textiles.

COMMERCE. The values of imports and exports of merchandise have been as follows:

	1908	1909	1910
Imports.....	\$173,017,849	\$179,690,125	\$235,574,837
Exports.....	215,266,136	308,331,829	310,006,438

The leading imports include iron and steel manufactures, machinery, railway materials, cotton manufactures, flour, coal, wine, arms and munitions, codfish, kerosene, jerked beef, and paper. Values of principal exports:

	1908	1909	1910
Coffee	\$111,740,270	\$161,922,682	\$127,212,875
Rubber	57,155,489	91,578,388	124,400,714
Yerba maté.....	8,004,154	8,025,333	9,575,550
Hides	6,384,555	8,812,660	8,626,966
Tobacco	4,080,257	6,443,681	8,048,925
Cacao	9,590,666	7,739,870	6,824,139
Cotton	999,868	2,861,662	4,440,372
Sugar	1,482,146	3,247,504	3,499,732
Skins	3,414,987	4,709,492	3,463,569
Bar gold		2,252,898	1,954,674
Manganese ore		1,730,311	1,887,747
Bran		1,210,572	1,813,895
Carnauba wax		1,230,038	1,421,910
Nuts		1,493,712	1,408,286
Cotton seed.....		711,401	639,725
Monazite sand		708,092	631,251
Gems.....		238,212	49,059

By quantity the leading exports were as follows in 1908, 1909, and 1910, respectively: Coffee, 12,658,457, 16,880,696, and 9,723,738 bags (of 60 kilos, or 132.27 pounds, each); rubber, 38,206, 39,027, and 38,547 metric tons (2204.6 pounds each); yerba maté, 55,315, 58,017, and 59,360; hides, 30,412, 35,784, and 34,059; tobacco, 15,264, 29,782, and 34,149; cacao, 32,956, 33,818, and 29,158.

Trade by countries in thousands of dollars:

	Imports		Exports	
	1909	1910	1909	1910
Great Britain.....	48,241	67,061	49,832	73,441
Germany	28,007	37,456	48,130	36,286
United States	22,266	30,254	123,817	112,184
France	18,610	22,268	26,514	26,117
Argentina	17,923	20,133	10,229	11,618
Portugal	9,995	13,104	906	834
Belgium	7,280	10,655	6,492	5,612
Italy	5,237	7,503	2,652	2,092
Uruguay	6,294	6,102	5,203	5,672
Austria-Hungary ..	2,366	3,347	10,261	9,008
Switzerland	1,963	2,912	.....	.....
Newfoundland	2,009	2,707	.....	.....
Spain	1,522	2,000	1,062	1,075
Norway	1,505	1,977	.....	.....
Netherlands	1,749	1,390	14,390	15,289
Canada	954	1,160	.....	.....
Other	3,771	5,545	8,842	10,779
	179,690	235,575	308,332	310,006

Trade at the principal ports in thousands of dollars in 1909 and 1910:

	Imports		Exports	
	1909	1910	1909	1910
Rio de Janeiro.....	67,225	87,257	34,630	38,069
Santos	34,593	46,794	130,944	93,107
Pará	14,864	20,456	40,432	55,464
Pernambuco	12,763	16,671	5,712	6,370
Bahia	14,864	12,288	19,443	22,212
Manoás	9,171	11,583	45,750	60,799
Porto Alegre	6,051	8,018	2,231	2,287
Rio Grande do Sul ..	6,023	7,038	2,261	3,526

SHIPPING. In 1909 there entered 5016 foreign vessels of 12,422,515 tons (8,239,330 British, 2,623,619 German, and 1,224,524 French); in 1910 5509 of 13,591,515 tons (of which 360 of 193,817 tons); in addition, in 1910, 16,834 Brazilian entries of 7,813,659 tons (of which 5263 of 229,205 tons sail). American entries in 1910 were eight vessels of 8129 tons.

COMMUNICATIONS. The railway mileage reported as in operation at the end of 1909 was 12,183, of which 6080 miles were owned and operated by the federal government, about 2450 were under federal concession and control, and 3653 were controlled by state governments. During 1910 1189 miles were opened to traffic, of which 180,913, and 96 miles respectively were added to the several systems. The total mileage increased from 9510 in 1901 to 13,372 at the end of 1910. The most important extensions in 1910 were between São Paulo and Rio Grande do Sul, thereby connecting Rio de Janeiro and Montevideo. The rail distance between the cities is 1967 miles, of which 1615 miles are in Brazil.

Much of the railway of Brazil is narrow (1 meter) gauge, and new construction included 186 miles on the Brazil North-Eastern, 100 miles on the São Paulo Southern from Santos to Santa Juquia. Progress was reported with 248 miles on the Sorocabano, and 235 miles of the São Paulo-Rio Grande line which extends from São Francisco on the Atlantic to the river Paraná, of which the first section is completed, and the Madeira-Mamoré line (to connect the navigable waters of those rivers, with a length of 214 miles) of which 94 miles had been completed at the beginning of 1911. Progress was also reported on the construction of the line from Igarapara in the state of São Paulo to Uberaba in the state of Minas Geraes, and the extension from Jupia, the terminus of the North-Western Railway, to Corumbá. Telegraph lines in 1909 aggregated 36,199 miles; wire, 73,124 miles. External communications were improved during 1911 by the completion of a trans-Atlantic cable (German), from Monrovia (Liberia) to Pernambuco; it was opened to use April 1. Post offices (1909), 3246.

FINANCE. Budget of 1911: Revenue, 85,048,526 milreis gold and 299,908,400 milreis paper; expenditure, 69,100,356 gold and 394,186,258 paper. The estimated expenditure included: Finance, 44,100,516 gold and 94,917,287 paper; communications and public works, 9,988,314 and 110,556,479; marine, 9,000,000 and 48,096,359; war, 1,300,000 and 74,476,983. Public debt as reported for December 31, 1910: Foreign, £87,286,317 and 240,000,000 francs; internal, 566,237,600 milreis paper; floating, 256,546,647 milreis paper; paper money in circulation, 621,005,255 milreis. The gold milreis is worth 54.6 cents and the paper milreis about 31 cents.

NAVY. As reported for 1911, the navy included: Two dreadnoughts, aggregating 38,500 tons; one old battleship, 5700; two armored coast guards, 6320; two monitors, 940; two scout cruisers, 6200; one protected cruiser, 3450; two second-class cruisers, 5840; three torpedo cruisers, 3090; one old gunboat, 800; one old destroyer, 500; ten new destroyers, 6500; two school ships, 4000. In addition there are several torpedo boats, river gunboats, transports, and dispatch boats. The two dreadnoughts, *Minas Geraes* and *São Paulo*, have each a displacement of 19,250 tons, 21 knots speed, a

battery of 24 12-inch and 22 4.7-inch guns; 500 feet between perpendiculars, 84 feet beam, 25 feet draft, and armor belt of nine inches maximum thickness. The *Rio de Janeiro*, under construction in 1911, will have a displacement of 27,500 tons and a main battery of 10 14-inch guns.

ARMY. The Brazilian army is organized on a basis of compulsory service from the ages of 21 to 44 under the terms of the law promulgated in January, 1908. The service required is two years with the colors, seven in the reserve, seven in the second line, four in the National Guard, and four in its reserve. The permanent army, which is maintained at a peace strength of about 30,000, consists of fifteen regiments of infantry, each of three battalions, twelve regiments of light artillery, fifteen 2-gun companies, nine regiments of cavalry, three independent regiments, ten squadrons for infantry brigades, scouting troops for the cavalry, and forty-five 4-gun batteries of field artillery, five 6-gun howitzer batteries, nine 4-gun horse batteries, 6 4-gun mountain batteries, siege artillery, fifteen ammunition columns, and engineers and railway transports. In 1910 the peace effective was 2167 officers, 346 surgeons and veterinarians, and 18,624 non-commissioned officers and men. There was also a corps of gendarmes aggregating 20,000 men, of whom 2486 were at Rio de Janeiro. Considerable interest was being manifested in the rifle club movement throughout the republic.

GOVERNMENT. The executive authority is vested in a president, who is elected for four years and is assisted by a cabinet of seven ministers appointed by and responsible to himself. The legislative power devolves upon a Congress of two houses, the Senate (63 members elected for nine years) and the Chamber of Deputies (212 members, three years). The president, vice-president, senators, and deputies are chosen by popular vote. The president for the term beginning November 15, 1906, was Affonso Moreira-Penna; he died in June, 1909, and was succeeded by the vice-president, Nilo Peçanha. The latter was succeeded on November 15, 1910, by Marshal Hermes da Fonseca.

BREAD. See **FOOD AND NUTRITION.**

BREEDING. See **STOCK-RAISING.**

BREMEN. See **GERMANY.**

BRETHREN, CHURCH OF THE, also known as the Dunkers or Dunkards. A religious denomination which includes a considerable body of Christians, whose faith and practice are not generally known outside of the localities in which they live. It had its origin in Germany in 1708, with Alexander Mack as its leader. Driven by persecution, bodies of worshippers came to the United States and settled first near Germantown, Pa., whence they spread to various sections of the country. Communicants recognize the New Testament as the rule of conduct, believe in the Trinity and hold faith, repentance, and baptism by triple immersion to be conditions of pardon and membership. Foot-washing is observed as a religious rite and is followed by an evening meal, which is called the Lord's Supper. The denomination includes three groups, the Conservatives, Progressives, and Old Order. The Conservatives are the most numerous and number about 100,000 communicants, 880 churches, and 3006 ministers. This body sustains ten colleges and one of the largest denominational printing houses in the

West, known as the Brethren Printing House at Elgin, Ill. Its official organ is *The Gospel Messenger*. The general conference of this body was held at St. Joseph, Mo., in June, 1911. During the latter part of the year four new missionaries were sent to India and six to China. Two elders were sent to Europe, one to take supervision of the mission in Denmark and Sweden, and the other to look after the work in France and Switzerland. At the general conference held in Des Moines, Ia., in 1908, the change of the name of the organization from German Baptist Brethren to Church of the Brethren was made. Dunker or Dunkard as a name is not recognized within the denomination. The general conference for 1912 will convene at York, Pa., June 4.

The Progressive Brethren in 1911 numbered 18,607, with 219 churches and 186 ministers. They maintain a college and publishing house at Ashland, Ohio. The Old Order numbers 4000 communicants, 75 churches, and 228 ministers. A small body known as the Seventh Day German Baptists numbers 240 communicants, 14 churches, and 9 ministers. It is found in the vicinity of Ephrata, Pa.

BREWERS' CONGRESS, INTERNATIONAL. See **AGRICULTURE.**

BRIAND, ARISTIDE. See **FRANCE, History.**

BRIDGES. There were few notable bridges in course of construction during the year 1911, as was the case also in the previous year. For small structures reinforced concrete continued in favor, and the variety of structures in which concrete figured increased. There were notable examples of single-arch bridges, such as the Risorgimento Bridge over the Tiber at Rome, and a 300-foot reinforced concrete bridge at Larimer Avenue, Pittsburgh, Pa., which was in course of construction during the year, and was the largest masonry arch in the United States, exceeding the 281-foot Monroe Street arch at Spokane, Wash.

QUEBEC BRIDGE. After the collapse in August, 1907, of the unfinished bridge across the St. Lawrence River at Quebec, considerable attention and discussion centred not only on the nature and causes of this disaster, but also on the decision of the Canadian government relative to a new structure. The failure of the bridge was examined most critically by a royal commission of three Canadian engineers, who discussed its shortcomings in an exhaustive report; and a new board was appointed which in 1910 announced an official design for the new structure. This plan involved a five-span bridge with two anchor, two cantilever and one suspended girder spans, each 586 feet in length. On this design bids were invited, and at the same time other designs were requested from bridge companies. The time allowed was but four months, and there was no compensation for the preparation of these plans, so that the conditions were not favorable to the best results. Nevertheless, twenty-four tenders were received, varying from \$11,000,000 to \$16,000,000, and eight or nine competitive plans. The outcome was the adoption of an independent design which was drawn up and submitted by a Canadian corporation, the St. Lawrence Bridge Company, providing for a structure with limited railway capacity and costing about \$9,000,000. This was to be a cantilever structure 1800 feet in the clear between the centres of the main piers. With the design for the Quebec bridge settled, the progress of

reconstruction was advanced rapidly. The three caissons required were constructed during the year, and two of these were sunk in place.

HELL GATE BRIDGE. The most important event in bridge building in the United States was the award to the American Bridge Company of the contract for the four-track Hell Gate Bridge of the New York Connecting Railways, designed by Gustav Lindenthal. This will bring the Long Island railway system into connection with the New York, New Haven & Hartford Railroad on the mainland. The design of this bridge included a main span of 1000 feet, which will be the longest and heaviest arch span in the world. The roadway, on which four railroad tracks will be laid, will be 140 feet above the water in the clear, while the top of the arch will be 265 feet above the water. The abutment towers will be of granite masonry and concrete, 200 feet in height. For the bridge alone 18,000 tons of steel will be required, and for the viaducts and other approaches for the whole structure, which will total some $3\frac{1}{2}$ miles in length, there will be required about 70,000 tons.

ST. LOUIS MUNICIPAL BRIDGE. During the year a large combined railway and highway bridge was being constructed across the Mississippi River between the cities of St. Louis, Mo., and East St. Louis, Ill. This bridge was formed by simple truss spans of the Pettit type, each with a length of 668 feet from centre to centre of the end pins. This extreme length of span was required by the United States War Department, which demanded that the length of span and height above high water must conform to those of the Thebes Bridge, the first existing structure south of the Eads Bridge at St. Louis, which was considered the dividing line between the upper and the lower river. The Thebes Bridge had a central span 650 feet in the clear, with a vertical clearance of 65 feet above the high water line of 1844; consequently, a revision of the span first proposed for the St. Louis Bridge was necessary and new plans were drawn giving three approximately equal spans of about 650 feet in the clear, and a height of 65 feet above the high water line of 1903. The bridge thus provided for, and in course of construction during the year, had two decks, the lower of which carried two steam railway tracks, while the upper supported two electric railway tracks on a 30-foot paved railway and carried two 6-foot sidewalks on cantilever brackets. The steel work consisted of nickel steel for the main truss braces, both tension and compression, and carbon steel for the secondary truss braces, railway and highway floor system, and for bracing and for minor details.

The bridge was built by the American Bridge Company and was erected on the falsework which was built on piling placed in the river bottom. This was permitted by the government on condition that one of the three spans should always be kept free for river traffic. After the falsework was arranged a traveler equipped with electric power was installed on the railway floor, and a smaller traveler on the stringers of the upper deck. Electricity was supplied by a power plant on the shore, and the material was rapidly riveted in position as it was delivered. The total weight of the three spans was about 13,935 tons. The pile driving for the east span was begun on May 9, 1911, and the falsework was finished on September 13 of the same year. The erection of the truss began immediately and

required about six weeks' time. The east channel was cleared on November 21. The trusses of the middle span were erected by December 6, and the west span was under erection at the end of the year, requiring but a few weeks for its completion.

Several important railway bridges were under construction in Canada during the year. The Canadian Pacific Railway Company made considerable progress with its bridge at Edmonton, and the high concrete piers to carry the steel structure will complete it, considerable work having been done on the structure itself. This bridge was 200 feet in height and 600 feet in length. At Entwistle, Canada, the Canadian North Railway was building a high bridge 200 feet in height and 600 feet in length over the Pembina River. A high-level railway bridge was also being constructed at Queen Street, Toronto, constructed by the Grand Trunk, Canadian Pacific, Canadian Northern, and the Toronto Railway.

EUROPEAN CONSTRUCTION. Few important bridges were built in Europe during the year 1911. In Great Britain a number of minor structures of reinforced concrete were under way. Of these the most important were the Warrington Bridge over the river Mersey, built on the Considere system with a single arch of 134 feet span and a width of 80 feet. At Blackburn a bridge of 40 feet span and 37 feet width was built over the Leeds and Liverpool Canal, while a ferro-concrete bridge of somewhat unusual design was built over the Stour River, 142 feet in length, with a width of 25 feet. It has six arches of three ribs each carried on five ferro-concrete pile piers. An important railway bridge was built by the Great Western Company over the Towy River at Carmarthen, consisting of five 50-foot fixed spans and a 50-foot rolling lift. This bridge was built on piers made of 7-foot cylinders in pairs, sunk by compressed air, one reaching to a depth of 300 feet.

RISORGIMENTO BRIDGE, ROME, ITALY. Gradually the construction of single arch spans of reinforced concrete had progressed, and in 1911 a record was made in the Risorgimento Bridge across the Tiber with a single span of 328 feet. The arch has a rise of 32.8 feet, and a total width of 65 feet 6 inches, affording a roadway 42 feet 6 inches wide and two sidewalks each 10 feet 3 inches in width. This design, which was submitted by Signor G. A. Porcheddo, the Italian representative of Messrs. Hennebique of Paris, was the only one proposed where three arches were not involved, and after careful consideration by a technical commission the plans were approved, and construction was begun November 11, 1909. The piers of this notable structure were built on foundations which had been formed by the "Compressol" system, where the subsoil was compressed by means of seventy-two concrete piers which had been formed by ramming deep holes by falling weights which were then filled with concrete and similarly rammed. These piers, widely and symmetrically distributed, provided immovable roots for the foundations upon which the bridge abutments were built. These were built in the form of ferro-concrete caissons of several compartments formed by partition walls, the longitudinal partitions serving as counterforts, and being connected menolithically with the vault of the arch and the spandrel walls which are continued up to the docking. The seven span-

drel walls are strengthened by transom partitions acting as wind bracing.

An interesting feature of the construction was the use of ferro-concrete instead of timber staging, and upon falsework so constructed the molds and centring necessary for the construction of the permanent arch were erected. The bridge was completed on April 11, and then received a severe series of tests, steam rollers, moving bodies of troops, and other static and dynamic loads being applied while the deflection was noted. The bridge withstood all tests satisfactorily, and was a feature of the Rome Exhibition, connecting as it did the artistic with the ethnographic portions. Signor Porcheddo, in recognition of his skill and engineering services, was created a knight commander of the Order of the Cross of Italy.

SITTER VIADUCT. The highest bridge structure in Switzerland was the Sitter viaduct on the Bodensee-Toggenburg, between St. Gall and Watwil across the Sitter River over a deep gorge. The total height of the viaduct is 1130 feet, and its middle space is crossed by a single steel truss 400 feet in length. The remainder of the structure consists of stone arches carried on stone columns of unusual height. The main stone arches are of 137 feet span, and the highest pier runs to a height of 330 feet, being 40 feet square at the base. There were also a number of smaller arches for the approaches. The steel truss was erected by means of a timber scaffolding, which was designed not only to support the weight of the truss itself, but also to resist strong wind pressure. The scaffolding carried an electric elevator and the machinery necessary for the construction of this part of the work. After the middle part of the bridge truss had been built to a length of 120 feet, the remaining distance on either side to the stone pillars was constructed by the use of a heavy traveling crane. This novel method of construction was found most successful, and the material hoisted from the valley below was then placed in position as needed.

TEES TRANSPORTER BRIDGE. The new transporter bridge across the river Tees in north-east England at Middlesbrough was formally opened for traffic on October 17 by Prince Arthur, son of the Duke of Connaught. This bridge supplants the former ferry boat service, and was constructed in preference to a tunnel or high-level bridge for a number of reasons independent of the high cost. The situation of the land on either side of the river made the difficulties involved in the approaches for either a tunnel or a high-level bridge practically insurmountable. Consequently, it was decided to erect two groups of piers on masonry foundations, and connect them by a pair of lattice-type-girders of 570 feet span, from which a traveling platform could be suspended. The under side of these girders is 160 feet above high water mark, and the depth varies from 65 feet from the towers to 21 feet at the centre. On the lower flange of each girder are two lines of rails spaced at distances of 35 feet from centre to centre. These four lines of rails support a traveling platform from which a car 44 by 39 feet is suspended. This car has passenger cabins and accommodations for 600 passengers and six vehicles and is suspended at a level with the roadway at each side of the river. The traveling platform on the rails is moved to and fro by an endless rope-way driven by a winch connected with two 60-horsepower Westinghouse motors. The working

of the car can be controlled from the pilot house on top of the passenger cabin, or in case of an emergency from the winch house on the shore. The main girders are of the braced cantilever type, and the extremities of the main span are anchored to concrete anchorage blocks by wire ropes embedded in concrete. In one of the two towers at each abutment there is a spiral stairway giving access to the main platform of the bridge which can be used as a footwalk. The cost of the entire structure was estimated at about \$409,000.

BRINCKERHOFF, WALTER REMSEN. An American pathologist, died March 2, 1911. He was born in 1875. After completing his medical studies he was appointed to the United States Marine Hospital Service and was the first director of the Leprosy Investigating Station in Hawaii. He served there from 1906 to 1910, when he was appointed assistant professor of pathology at the Harvard Medical School. In 1904 he was made a fellow of the Rockefeller Institute for Medical Research. In 1910, with his associates, he succeeded in isolating the leprosy germ and finding an artificial medium on which it would feed, at last paving the way for the eventual cure of leprosy by antitoxins.

BRINKERHOFF, ROELIFF B. An American banker, philanthropist, and public official, died June 4, 1911. He was born in Owasco, N. Y., in 1828, and was educated in the common schools and in the Auburn and Homer academies. At the age of 18 he removed to the South and was for three years a tutor in the Hermitage, the home of President Jackson. Returning to the North, he studied law at Mansfield, O., and began practice in 1852. From 1855 to 1859 he was editor and proprietor of the *Mansfield Herald*. He enlisted in the Civil War as first lieutenant in the Sixty-fourth Ohio Volunteer Infantry and served throughout the war, attaining the rank of colonel in the quartermaster's department. He was made brigadier-general for meritorious service. At the close of the war he resumed practice until 1873, when he engaged in the banking business. He was active in prison reform work, and in 1880 was president of the National Conference of Charities and Corrections. In 1895 he was vice-president of the International Prison Conference in Paris and president of the American delegation. From 1884 to 1894 he was vice-president of the American National Prison Congress and in the latter year became its president. He was the author of *The Volunteer Quartermaster*, and *Recollections of a Lifetime* (1900).

BRISTOL. See NAVAL PROGRESS, *Propulsion*.
BRITISH ANTARCTIC EXPEDITION. See POLAR RESEARCH.

BRITISH COLUMBIA. A province (since July 1, 1871) of the Dominion of Canada. Capital, Victoria (population, preliminary returns census of June 1, 1911, 31,620). Area, 312,630 square miles; population (1911, final), 392,480. The lieutenant-governor (in 1911, appointed December 3, 1909) is Thomas W. Patterson. He is aided by an executive council of seven members (responsible ministry) and a legislative assembly of forty-two members. Premier in 1911, Richard McBride. See CANADA.

BRITISH DEVELOPMENT FUND. See AGRICULTURE.

BRITISH EAST AFRICA PROTECTORATE. A British dependency lying between the

Umba and the Juba rivers and extending inland to the Uganda Protectorate. Estimated area, 177,100 square miles; estimated population, 4,038,000, made up largely of Arabs and Swahilis on the coast, Bantu-speaking tribes, and Masai, Somalia, and Gallas in the interior. Asiatics number about 25,000; Europeans and Eurasians, 2000. Mombasa, the largest town (on Mombasa Island), has 30,000 inhabitants; Nairobi, the capital and the central station of the Uganda Railway, 14,000 (700 Europeans). Paganism prevails. There are government and mission schools; and Mohammedanism has gained much ground. Wheat and cotton growing are becoming increasingly important; and corn, rice, tobacco, hemp, rubber, etc., are cultivated. Important industries are ostrich, sheep, and dairy farming. Government timber lands are estimated to cover 2,000,000 acres. The mineral resources are negligible. Imports, 1909-10, £775,246; 1910-11, £1,000,346; exports, £590,057 and £962,911. Shipping entered and cleared, 1909-10, 2,018,192 tons.

The length of the Mombasa-Victoria (Uganda) Railway (state) is 584 miles; construction cost, to March 31, 1910, £5,637,333. Revenue (1910-11), £809,586; expenditure, £882,041.

The governor (1911, Sir Percy Girouard) is also commander-in-chief of the military forces.

Since the passage (1907) of the ordinance abolishing slavery in the protectorate to the close of the fiscal year 1910, claims have been paid for compensation to slave-owners and for maintenance of decrepit slaves, amounting to over £20,000. The Magadi Soda Company (Ltd.) was formed in 1911 with a capital of approximately £1,300,000, to develop the important deposits of natural soda covering an area of some thirty square miles, known as Lake Magadi, in the protectorate; to connect the same with the Uganda Railway by the construction of a branch line, about 100 miles long; and to build a pier and approaches thereto, at or near Kilindini. Preliminary work on the new railway was begun in 1911. The junction is to be at a point between Ulu Station and Kapiti Plains.

BRITISH GUIANA. A British colony, on the northeastern coast of South America. Area (estimated), 90,277 square miles. Population (negroes, East Indians, Europeans, Chinese, aborigines, and mixed races) in 1891, 278,328; estimate in 1910, 310,000. Births and deaths in 1909, 8947 and 9367 respectively. Of the total population in 1891 105,444 were agricultural laborers (90,492 on sugar estates). East Indian immigrants (1909-10), 2508; returning emigrants, 793. Capital, Georgetown (53,176 inhabitants). Schools receiving government aid (1908-9), 223, with 33,888 pupils; grant, £25,274.

Gold output in 1908-9, 73,655 ounces (value, £268,532); in 1909-10, 64,830 (£236,359). Diamond export (1909-10), 7095 carats (value, £9386). Imports (1909-10), £1,774,457 (textiles, £223,449; flour, £195,052; manures, £132,830; meats, £66,199; fish, £64,357). Exports, £1,985,337 (sugar, £1,205,215; raw gold, £229,516; rum, £128,598; balata, £95,507; rice, £64,616; timber, etc., £22,070). Tonnage entered and cleared (1909-10), 897,864. Railway lines (1909), 95 miles; telegraph and cable lines, 559; post offices, 74. Revenue (1909-10), £540,269; expenditure, £546,711. Public debt (March 31, 1910), £888,115. Savings banks depositors (December 31, 1909), 29,398, with £298,893 deposits.

Governor (1911), Sir Frederic Mitchell Hodgson.

BRITISH HONDURAS. A British crown colony in Central America. Area, 7562 square miles; population (1901), 37,479; 1911, 40,458. Birth-rate (1909), 37.005, death-rate, 21.832 per thousand (illegitimate births, 41.62 per cent. of total births). Capital, Belize (10,478 inhabitants in 1911. Primary schools (1909), 41; pupils, 4447; grant-in-aid, £3714 (in addition 5 receiving no grant). Secondary schools, 5, with 291 pupils. Mahogany and logwood are the important products; bananas, coffee, plantains, etc., are grown. Imports (1909-10), £556,430, subject to duty; duty free, £219,833. Exports, £454,532. Export of mahogany, 10,673,881 superficial feet; logwood, 6134 tons; cedar, 936,708 feet; bananas, 390,350 bunches; cocoanuts, 5,554,679; chicle, 2,213,450 pounds. Owing to low water in the streams, much of the felled mahogany remained on the banks, tying up large amounts of American capital. Tonnage entered and cleared (1909), 697,324 (397,318 tons British). Telegraph and telephone lines connect Belize with Corosal, Punta Gorda, and other stations. Revenue and expenditure (1909-10), £80,891 and £75,819 respectively. Public debt (1909), £34,736. Governor (1911), Colonel E. J. E. Swayne.

BRITISH INDIA. See INDIA, BRITISH.

BRITISH-JAPANESE AGREEMENT. See JAPAN, and UNITED STATES, *Treaties*.

BRITISH NEW GUINEA. See PAPUA.

BRITISH NORTH BORNEO. A British protectorate, occupying the northern part of the island of Borneo. Area, about 31,100 square miles; estimated population (Mohammedans, aborigines, and Chinese), 160,000. Sandakan (6000 inhabitants) is the chief town on the east coast, Jesselton on the west. Tobacco, tapioca, sago, rubber, cocoanuts, sweet potatoes, and coffee are grown; the forests yield timber, gums, camphor, rattans, and fruits. Birds' nests, seed pearls, and beche-de-mer are exported. Imports (1909), 2,918,307 dollars Mexican; exports, 4,575,412 (leaf tobacco, 2,521,901). Shipping entered (1909), 169,712 tons; cleared, 168,599. There are 120 miles of railway, internal telegraph and exterior cable connection, and several branch banks. Revenue (1910), 4,609,021 dollars Mexican; expenditure, 3,801,306. The territory is administered under the control of the British North Borneo Company by a governor (1911, F. R. Ellis).

BRUNEI, on the northwest coast of Borneo, was placed under British protection in 1888. Area, 3000 square miles; population (1911), 30,000. Chief town, Brunei (10,000 inhabitants). Ruling sultan, Mohammed Jamal-ul-alam. British resident, Harvey Chevallier (acting).

BRITISH SOLOMON ISLANDS. A British protectorate in the western Pacific, including Guadalcanar, Malaita, San Cristobal, New Georgia, Yela, Tulagi, Santa Cruz, Vanicoro, Choiseul, Ysabel, Kausagi, Lord Howe's group, islands in the Bougainville Straits, and other isles and islets. Area, 8357 square miles; population (1908), 251 whites, 150,000 natives. Imports (1908-9), £57,337; exports, £50,147 (copra, £39,144; ivory nuts, £2795; timber logs, £1456; gold coin, £2500—largely brought back by natives deported from Queensland). Vessels entered and cleared (1908-9), 117, of 75,156 tons. Revenue (1909-10), £11,356; expenditure,

£8500. Resident commissioner (1911), Charles M. Woodford, with headquarters at Tulagi.

BRITISH SOMALILAND. A British protectorate on the Gulf of Aden. Estimated area, 68,000 square miles; population (largely Mohammedan nomads), about 300,000. Berbera, the chief town, has, in the trading season, 30,000 inhabitants. Zeila has 15,000; Bülahar, 12,000. Imports (1910-11), £245,795 (rice, piece-goods, shirtings, dates, etc.); exports, £231,100 (skins and hides, ostrich plumes, gum, cattle, and sheep). Transport is by camels; miles of telegraph, 200. Tonnage entered and cleared (1909-10), 174,527. Revenue and expenditure (1909-10), £31,384 and £192,838. The protectorate is administered under the Colonial Office by a commissioner, who is also commander-in-chief of the military forces (1911, H. A. Byatt, acting).

BRITISH WEST AFRICA. See **NORTHERN NIGERIA**; **SOUTHERN NIGERIA**; **GOLD COAST**; **SIERRA LEONE**; and **GAMBIA**.

BROADHURST, HENRY. An English labor leader and member of Parliament, died October 11, 1911. He was born in the parish of Littlemore, near Oxford, in 1840. He attended the village school of that place until he was 12 years of age. He left this and began soon afterwards regular employment in a blacksmith shop. He worked afterwards as a stonemason. In 1865 settling in London, where he worked on the Houses of Parliament, Westminster Abbey and other well-known buildings. A lockout in the building trade in the spring of 1872 brought him to the front as a leader and he succeeded in settling the strike. In 1880 he was elected to Parliament from Stoke-upon-Trent. He continued to be a member of Parliament, except for an interval of a year and a half, until 1906. In 1884 he was appointed a member of the Royal Commission on the Housing of the Poor. Mr. Gladstone, in February, 1896, offered him the position of Under Secretary of the Home Office. He accepted this post and held it until the defeat of the government on the second reading of the Home Rule bill in the following July. He was obliged to retire from active work in 1888 on account of illness, but in 1891 was enabled to resume his political work to some extent. In the following year he ceased for a time to be a member of Parliament. He was appointed in 1892 on the Royal Commission to inquire into the condition of the aged poor. He was again elected to Parliament in 1894 and continued until 1906, when ill health obliged him to resign. He was one of the best known and most influential labor leaders in the United Kingdom. He wrote *Handy Book on Leasehold Enfranchisement* in 1885 and an autobiography.

BROWN, ELMER ELLSWORTH. An American educator, inaugurated November 9, 1911, as Chancellor of New York University to succeed Henry McCracken, who resigned in 1910. He was born in Chautauqua county, N. Y., in 1861, and graduated from the State Normal University of Illinois in 1881, and from the University of Michigan in 1889. He studied abroad for several years following his graduation from the University of Michigan. Previous to this time he had been principal of public schools in Illinois, and in 1890-91 was principal of the high school in Jackson, Mich. In 1891-2 he was appointed acting assistant professor of science and art of teaching in the University of Michigan and in the year following became assistant professor. He was appointed full professor of this

chair in 1893, holding this office until 1906. In that year he was appointed United States Commissioner of Education, at the same time holding the appointment of honorary professor of the science and art of teaching at the University of California. From 1905 to 1907 he was president of the National Council of Education. He was the author of *The Making of Our Middle Schools* (1903); *Origin of American State Universities* (1905); *Government by Influence, and Other Addresses* (1909). He also wrote many articles for educational periodicals and delivered many addresses before educational and other bodies.

BROWN-TAIL MOTH. See **ENTOMOLOGY**.

BROWN UNIVERSITY. An institution of higher learning at Providence, R. I., founded in 1764. The number of students enrolled in the various departments of the university in 1910-11 was 930. The faculty numbered eighty. The university lost several members of its faculty in the year 1910-11. Professor Willard H. Munro resigned the professorship of European history and was made professor emeritus. His work was taken by Theodore F. Collier, Ph. D., formerly of Williams College. William Kirk, associate professor of political and social science, resigned to accept the leadership of an important civic movement in the city of Rochester, N. Y. In his place John Corlies Dunning, Ph. D., was appointed instructor in social and political science. Among other resignations were those of Arthur H. Blanchard, associate professor of civil engineering, James Frankling Collins, assistant professor of botany, and Henry W. Drowne, instructor in civil engineering. During the year \$400,000 was secured toward the endowment fund of \$1,000,000, which is being raised for the work of the university. A gift of \$85,000 was received from Dr. O. H. Arnold. This sum is to be used chiefly for biological work, including the erection of a biological laboratory. The total funds of the university amount to \$3,758,926. The income in 1910-11 was \$226,673. The library contains about 175,000 volumes. The president is W. H. P. Faunce, D. D.

BRUFF, LAWRENCE LAURENSEN. An American soldier and educator. Died August 6, 1911. He was born in Maryland in 1851 and graduated from the United States Military Academy in 1875. He was promoted through various grades until he became lieutenant-colonel, in 1906. From 1891 to 1900 he was instructor in ordnance and gunnery at the United States Naval Academy. In the latter year he was appointed assistant at the Watervliet Arsenal, N. Y., in which position he remained until the time of his death. He was the author of *Exterior Ballistics, Niven's Method* (1885); *Notes on Machine and Rapid Fire Guns, Small Arms and Ballistic Machines* (1892); *Gunpowder and Interior Ballistics* (1892); *Exterior Ballistics, Gun Construction, United States Sea Coast Guns* (1892), and *Ordnance and Gunnery* (1906).

BRUNEL. See **BRITISH NORTH BORNEO**.

BRUNSWICK. See **GERMANY**.

BRYAN, NATHAN PHILEMON. United States Senator (Democrat) from Florida. He was born in Orange (now Lake) county, Florida, in 1872 and was educated at Emory College, graduating in 1893. After studying law at Washington and Lee University he was admitted to the bar and from that time until his election

to the Senate practiced law at Jacksonville. From 1905 to 1909 he was chairman of the Board of Control of the Florida State Institutions of Higher Education. He received the nomination for the Senate at the Democratic primary election of January 31, 1911. He was thereupon elected by the legislature. (See FLORIDA.) His term of service will expire in 1917.

BRYAN, WILLIAM J. See NEBRASKA.

BRYN MAWR COLLEGE. An institution for the higher education of women at Bryn Mawr, Pa., founded in 1885. The number of students in 1910-11 was 439, of which 70 were graduate students and 369 non-graduate. The faculty and staff of the college numbered 62. Among the benefactions received during the year was \$150,000 for the establishment of a school of education with a practice school in which graduate students will be instructed in the best methods of teaching high school grades. A legacy of \$750,000 was received from the late Emma Carola Woerishoffer of New York City, a graduate of the class of 1907. The same will probably be devoted to the general endowment of the college. The library contains about 60,000 volumes. President, Miss M. Carey Thomas.

BUCK'S STOVE AND RANGE COMPANY. See LABOR, AMERICAN FEDERATION OF.

BUCKWHEAT. Data on the world's production of buckwheat are not available. In the United States the crop of 1911 produced on 833,000 acres amounted to 17,549,000 bushels, as compared with an acreage of 860,000 and a production of 17,598,000 bushels in 1910. The crop ranks relatively high, being over 7 per cent. above the five-year average and being exceeded by only two crops since 1868. The total value of the crop based on a farm value of 72.6 cents per bushel on December 1, 1911, amounts to \$12,735,000, which is above the five-year averages by 13 per cent., and which has not been exceeded since the sixties. Only once, in 1908, has the price per bushel been higher than this year since 1883. The leading buckwheat-producing States in 1911, as for a number of years past, were Pennsylvania, New York, and Michigan. Pennsylvania produced 6,373,000 bushels on 291,000 acres, New York 5,964,000 bushels on 280,000 acres, and Michigan 1,206,000 bushels on 67,000 acres. West Virginia and Maine, which ranked next, produced 864,000 and 450,000 bushels respectively. The highest average yield per acre was secured in the three northern New England States and West Virginia, Maine standing first, with thirty bushels, and West Virginia last, with twenty-four bushels per acre. The higher value of cereal straws has given rise to a more extended use of buckwheat straw for stable bedding and for mulching strawberries and other horticultural purposes, where a coarse, non-matting material is required.

BUFFALO. See BUILDING, and MUNICIPAL GOVERNMENT.

BUFFALO ART EXHIBITION. See PAINTING.

BUILDING. An interesting summary of reports from twenty cities in the United States, published by Bradstreet shows that the projected building in 1911 aggregated a total of \$824,088,000, against \$846,712,000 in 1910, and \$899,723,000 in 1909. To these amounts New York contributed in 1911 22 per cent., or \$188,-

933,000, as compared with 24 per cent. in 1910, and 30 per cent. in 1909. This was not uniformly the case in all the boroughs, as Manhattan and Queens showed a gain over 1910, but in the other boroughs in the greater city less than in the record year of 1909. In Chicago the aggregate for 1911 was \$105,269,000, or a gain of 8 per cent. over 1910, and of 15 per cent. over 1909, so that in the former year the Chicago proportion of the country's building was 12 per cent., as against 11 per cent. in the earlier years. Philadelphia ranks after Chicago, with a total expenditure of \$39,970,000, a slight increase over 1910, but a slight loss from 1909. Los Angeles, Cal., comes fourth, with an expenditure of \$22,947,000, which is a gain of 6 per cent. over 1910, but of 70 per cent. over 1909. San Francisco, with an aggregate expenditure of \$20,915,000, gained 6 per cent. over 1910, but lost 26 per cent. from 1909. The cities with expenditures in excess of \$15,000,000 in 1911 were Boston, Portland, Ore., Detroit, St. Louis, and Washington, in the order named. Minneapolis, Kansas City, Milwaukee, Pittsburgh, Cincinnati, Newark, N. J., and Buffalo, showed expenditures during 1911 in excess of \$10,000,000 each. See ARCHITECTURE.

BUILDING OPERATIONS IN 1911. See FINANCIAL REVIEW.

BULGARIA. A constitutional monarchy of the Balkan Peninsula. Capital, Sofia.

AREA AND POPULATION. Estimated area (including Eastern Rumelia, 12,585), 37,199 square miles. Population (1905), 4,035,623 (of whom Eastern Rumelia, 1,174,535); census of December 31, 1910, 4,329,108. Population of Sofia (1910), 102,769; Philippopolis (capital of Eastern Rumelia), 47,929; Varna, 41,317; Ruschuk, 35,823; Slivno, 25,141; Shumla, 22,275; Plevna, 21,145. Marriages (1908), 37,049; births, 169,338; deaths, 101,803; still-births, 937.

EDUCATION. Primary education is free, nominally compulsory, and state-aided; the rich are required to pay fees in the higher schools. Elementary schools (1906-7), 4581, with 8960 teachers and 415,685 pupils; secondary, 390 (1900 and 44,190). There are special, technical, and foreign schools, and a university at Sofia. The Orthodox Greek is the state church, though cut off from the patriarch of Constantinople.

INDUSTRIES. Of the total population, about five-sevenths are dependent upon agriculture. Area under cultivation, 3,585,544 hectares (2,158,338 under cereals, 89,818 under vines, 3000 under tobacco); under woods and forests, 3,041,324. The wheat export (the most important cereal) was 160,916 tons in 1909. Sericulture and the manufacture of attar of roses are carried on. Livestock (1905): 2,167,275 cattle; 8,081,716 sheep, 536,616 horses, 124,216 asses, 11,828 mules, 1,370,201 goats, and 461,241 swine. The mines are state-owned and yield coal, iron, gold, silver, lead, manganese, and copper.

COMMERCE AND COMMUNICATIONS. The trade for four years is given in thousands of leva as follows:

	1907	1908	1909	1910
Imports	124,661	130,150	160,430	177,357
Exports	125,595	112,357	111,434	129,052

The principal articles of the 1910 trade are given as follows:

Imports 1000 leva	Exports 1000 leva
Textiles, etc.....49,383	Cereals .....80,811
Metals, etc.....23,299	Animal prods.....13,002
Machinery, etc....19,777	Textiles, etc.....10,037
Colonial prods....10,348	Animals .....7,224
Skins, etc.....9,188	Perfumes .....5,555
Timber, etc.....6,982	Skins .....4,038
Chemical prods....5,538	Colonial prods....2,056
Resins and oils..5,109	Metals, etc.....1,127
Paper, etc.....3,772	Wooden wares ... 656

The principal countries of origin and destination in 1910 were Austria-Hungary (imports 47,572,000 leva, exports 7,828,000), Germany (34,120,000 and 14,218,000), Great Britain (22,628,000 and 15,315,000), Turkey (21,024,000 and 44,283,000), France (15,348,000 and 9,039,000), Belgium (8,507,000 and 20,944,000), Italy (6,843,000 and 1,818,000). Vessels entered (1910), 16,931, of 3,895,899 tons; cleared, 16,898, of 3,891,868 tons. Railway mileage, 1082 in operation; 187 under construction. State telegraph lines, 3687 miles; wires, 7500; offices, 295. Telephone lines, 1157 miles. Post offices, 2070.

FINANCE. The monetary unit is the lev, worth 19.3 cents. Revenue and expenditure are given below for three years in leva (1911 estimate):

	1907	1910	1911
Revenue	149,515,231	173,389,493	178,445,500
Expenditure	115,658,812	163,451,041	178,395,443

The details of the 1911 budget are expressed below in thousands of leva:

Revenue 1000 leva	Expenditure 1000 leva
Customs 63,230	Public debt 40,440
Direct taxes 39,949	War 39,642
Transport 30,420	Public Works 30,382
Domains, etc.... 12,680	Instruction 23,598
Imports 10,716	Interior 10,460
Licenses 9,450	Com. and Agriculture ... 10,083
Fines 1,081	Finance 8,443
Other 10,969	Foreign Affairs... 6,452
	Justice 5,836
	Other 3,048
Total .....178,445	Total .....178,395

The public debt stood January 1, 1911, at 555,590,213 leva.

NAVY. Six torpedo boats, of 100 tons each, and two, of twenty; one transport, two yachts, and one cruiser of 735 tons make up the navy. Personnel, about 1000 officers and men.

ARMY. This effective army is well trained and armed with the most modern weapons. It consisted in 1911 of a total establishment of 56,593 men, of whom 892 were in the naval service. This gave a strength of 35,505 for the infantry, 5560 for the cavalry, 7937 for the artillery, and 3412 for the engineers. In February, 1911, the annual contingent amounting to about 24,000 men was embodied in the army, of which 18,000 were for two years' service in the infantry, and 2300 were for the cavalry and artillery, respectively, both classes for three years' service. At the same time a second contingent of 10,000 men for six months' service was incorporated in the infantry. As about 80,000 young men are available each year, and some 24,000 are embodied, it is possible easily to maintain the army at a peace strength of about 2500 officers and 53,000 men, while in addition those who have served their time with the standing army

pass into the reserve for 18 years, with the result that a war strength of about 380,000 officers and men, with about 425 guns, affording a well-trained army, is available on mobilization. The organization includes nine divisions, with headquarters at Sofia, Philippopolis, Slivno, Shumla, Ruschuk, Vratza, Dubnitsa, Eski-Zagra, and Plevna. Each division is made up of two brigades of four regiments, and generally of nine batteries, while six divisions include in addition cavalry regiments. During the year the cavalry strength was being raised to ten regiments, and each infantry regiment was given a machine gun section.

The Sofia military school turns out annually well-trained officers, and the staff organization is complete and efficient. The artillery is armored with Schneider-Canet quick-firing guns, and with Krupp mountain guns, and is among the best trained in European armies.

By a law of May 17, 1911, the constitution and function of the Superior Military Council of the kingdom of Bulgaria was determined. It was composed of the minister of war as president, the chief of staff of the army, the three generals commanding the various divisions, inspector-generals of the various organizations, artillery, cavalry, engineers, and infantry, and the aide-de-camp to the king. To this body may be added other high military officials. The council is assembled at the order of the minister, particularly once a year at the end of the summer manoeuvres, and at other times as needed to discuss military problems.

GOVERNMENT. Reigning sovereign (1911), Ferdinand, born February 26, 1861; elected July 7, 1887; married (1), 1893, Princess Marie Louise of Parma; (2), 1908, Princess Eleonore of Reuss-Köstritz; proclaimed king of the Bulgarians October 5, 1908. Heir-apparent, Prince Boris, born January 30, 1894. The ministry, as constituted March 29, 1911, was composed as follows: President of the Council and Minister of Foreign Affairs, Iv. Ev. Guechov; Interior, Al. Ludskanov; Finance, T. Theodorov; Instruction, S. S. Bobtchev; Justice, P. Abrachev; War, Gen. N. Nikiphorov; Commerce and Agriculture, D. Christov; Public Works, etc., K. Apostolov.

HISTORY. On October 5, 1908, Prince Ferdinand had proclaimed the independence of Bulgaria. This was followed by his assumption of the title of king, which was later recognized by foreign powers. After the proclamation of independence there followed negotiations with Turkey concerning an indemnity, and these finally resulted on April 19, 1909, in an agreement whereby all differences were settled and Turkey acknowledged Bulgarian independence. During 1910 there were reports of serious friction between Turkey and Bulgaria, owing to outrages in Macedonia and trouble on the frontier. On January 27, 1911, negotiations with Turkey concerning a commercial treaty were broken off and the Bulgarian tariff was applied in its full force to Turkish products. As in the preceding year there were reports of friction with Turkey, but no serious trouble occurred. As to the relations with Austria-Hungary, concerning which rumors implying an estrangement between the two countries had been frequent since the events of October, 1908, they were placed definitely upon a friendly basis by the visit of King Ferdinand to Vienna in March. Early in February the government proposed the calling of a

National Assembly to change certain points in the constitution, and on February 18 this proposal was adopted by the Sobranje. Toward the end of that month the Sobranje, after the discussion of the impeachment of the Stamboulovist ministry, voted by a two-thirds majority that five of the ex-ministers should be tried by a special State Court of Justice on the charge of systematically violating the laws to their personal advantage and the injury of the public treasury. On March 26, the premier, M. Malinov, whose demands for radical electoral reform were offensive to the king, offered his resignation. He was succeeded by Mr. Ivan Guechov, former foreign minister, who formed a new cabinet consisting of a coalition of Nationalists and Progressives. The new prime minister had been prominent for many years, having held the highest official positions. The leading feature of the government programme was a promise to promote cordial relations with Turkey, and all Bulgaria's neighbors, and to secure the sympathies of the great powers. On June 30, the Sobranje adopted by a large majority the measure modifying the constitution. In the following month it passed Article 24 of the Consolidation bill, which regulated the succession of King Ferdinand's first male descendant. This decision had been preceded by violent debates, in the course of which charges were made against the king in connection with the state municipal loan of 1901. Toward the close of the year there were reports of friction with Turkey. After the failure of the commercial negotiations, and the adoption of the Bulgarian tariff schedules to Turkish products, there had been virtually a tariff war between the two countries. Turkey retaliated against the Bulgarian tariff imposition by an especially prepared tariff applying to Bulgarian imports. In October the Bulgarian government expressed alarm at the mobilization of Turkish troops, and drew the attention of the powers to Turkey's military preparations, which it declared were unjustifiable. Representatives of the powers, however, assured the Bulgarian government that no aggressive action on the part of Turkey against Bulgaria would be permitted.

BULL, CHARLES STEDMAN. An American physician, died April 17, 1911. He was born in New York City and graduated from Columbia University in 1864, and from the College of Physicians and Surgeons in 1868. Following his graduation he was house surgeon in Bellevue. He then spent ten years in the universities of Vienna, Heidelberg, and Paris, and in London. He was surgeon of the New York Eye and Ear Infirmary, visiting surgeon at the Charity Hospital, professor of ophthalmology at the Cornell Medical College, and consulting ophthalmic surgeon in St. Luke's and other hospitals in New York City. From 1903 to 1907 he was president of the American Ophthalmological Society. He was a member of several learned societies.

BULLIS, JOHN LAPHAM. An American soldier, died May 28, 1911. He was born in New York in 1841 and was educated in the schools of that State. He enlisted in 1862 in the 126th New York Volunteer Infantry and after serving for two years was commissioned captain of the 118th United States Colored Volunteer Infantry. He served with this regiment until mustered out of service in 1866. In the following year he was appointed lieu-

tenant in the regular army. He was attached to the 41st infantry. He became captain in 1866 and in 1897 he was transferred to the paymaster's department with the rank of major, having received the brevet rank of major in 1890 for gallant services in action in Indian fights near Saragossa, Mexico, in 1876. He was also mentioned in despatches for gallantry in action against the Indians in the Burro Mountains, Mexico, in 1881. He was made brigadier-general in 1905, at the time of his retirement, which was granted at his own request after a service of over forty years.

BUNTING, Sir PERCY WILLIAM. An English editor, died July 22, 1911. He was born in 1836 and was educated at Owens College, Manchester, and Pembroke College, Cambridge. He became a barrister in 1862. In 1882 he became editor of the *Contemporary Review* and held that position until the time of his death. Before assuming the editorship of this magazine he had been a contributor to it for several years. Under his conduct the *Contemporary Review* contained many of the most notable articles found in any modern periodical. He actively participated in modern social reform movements and exerted a wide influence in their behalf. He was a keen politician and was active in the National Liberal Federation and for his services was rewarded with knighthood in 1908. He was a prominent member of the Methodist church of Great Britain and from 1902 to the time of his death was editor of the *Methodist Times*. He stood for Parliament in 1892, but was defeated.

BURNETT, FRANCES HODGSON. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

BUSINESS CONDITIONS IN 1911. See FINANCIAL REVIEW.

BUSONI, FERRUCCIO B. See MUSIC.

BUTLER, GEORGE PRENTISS. An American banker and philanthropist, died April 8, 1911. He was born in 1862, a son of William Allen Butler, the writer and poet. He graduated from Princeton in 1884 and was for several years thereafter one of the masters of the Lawrenceville School. In 1893 he came to New York and was associated with his brother, William Allen Butler, Jr., in several railroad reorganization committees; in 1898 he established the firm of George Butler & Brother. He was chosen president of the Albany and Susquehanna Railroad Company, and was well known for his activities in connection with reorganization committees on some of the Gould railway lines. He took great interest in civic and philanthropic work.

BUTTER. See DAIRYING.

BY-PRODUCTS OF COKE. See COKE.

CABELL, WILLIAM LEWIS. An American lawyer and soldier, died February 22, 1911. He was born in Danville, Va., and graduated from the United States Military Academy in 1850. He served against the Indians in the West until 1861, when he resigned his commission to accept a commission in the Confederate army. He rose to the rank of brigadier-general. He was captured on a raid into Kansas and was held as a prisoner of war until April 28, 1865. After the war he practiced law at Ft. Smith, Ark., and afterwards at Dallas, Tex., of which city he was four times mayor. From 1885 to 1889 he was United States marshal of the northern district of Texas.

CÁCERES, RAMÓN. President of the Republic of Santo Domingo, assassinated November 19, 1911. He had for some years been a political power in the Dominican Republic. He shot and killed President Ulises Hereaux after the latter had brought about the death of Cáceres' father. Under the rule of Luperon the latter had been cabinet minister and Hereaux, who was rising in power, disliked him and procured his death. He had no special desire to be president of the republic, but placed his cousin Vásquez in the presidential chair and he himself took a cabinet place after Hereaux's followers had been turned out of the capital. He afterward made Morales president, and he returned to his estates as a private citizen. He soon learned that Morales was organizing a party of his own in coalition with Hereaux's friends and he thereupon forced Morales to flee and he himself took the presidential chair in 1906. His rule brought prosperity to the country, but he had many enemies, among them Morales and Jiménez, former vice-president. In April, 1911, Cáceres received definite information that his assassination had been planned and that his government was to be overthrown by Morales and Jiménez. They were arrested, tried, and released. Cáceres was shot by two political malcontents, Luis Tejera and Jaime Mote, Jr., who fired at the president as he was leaving the house of a relative. He was removed to the American legation, where he died. The assassins fled to San Cristóbal.

CALAFATITA. See **CHEMISTRY, INDUSTRIAL.**

CALENDAR. See **ASTRONOMY.**

CALIFORNIA. POPULATION. The population of the State, according to the Thirteenth Census, of April, 1910, was 2,377,549, compared with 1,485,053 in 1900. The percentage of increase in the decade was 60.1. The principal cities and their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): San Francisco, 416,812 (342,782); Los Angeles, 319,198 (102,479); Oakland, 150,174 (66,960); Sacramento, 44,696 (29,282); Berkeley, 40,484 (13,214); San José, 28,946 (24,600); Stockton, 23,250 (17,506); Fresno, 24,892 (12,470); Alameda, 23,383 (10,464).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. In that year the number of farms was 88,197, compared with 72,542 in 1900. The land in farms was 27,931,444 acres, compared with 28,828,951 acres in 1900. The improved land in farms was 11,380,894 acres, compared with 11,958,837 acres in 1900, a decrease of 508,943 acres in the decade. The average acreage per farm in 1910 was 316.7, compared with 397.4. The value of the farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$1,614,694,584 in 1910, as compared with \$796,527,955 in 1900. Farms operated by owners and managers numbered 70,049, those operated by tenants 18,148. Of farms owned free from mortgage numbered 39,368, and those mortgaged 26,749. The native white farmers numbered 58,926; foreign-born white, 26,193; negro and other non-white, 3078. Of the non-whites, 1816 were Japanese, 591 Indians, 512 Chinese, and 159 negroes. The value of the cattle, domestic animals, poultry, and bees in 1910 was \$127,599,938, compared with \$67,303,325 in 1900. The cattle numbered 2,077,

025, valued at \$52,785,068; horses and colts, 408,886, valued at \$47,099,196; mules, 69,761, valued at \$9,016,444; swine, 766,551, valued at \$5,106,883; sheep, 2,417,477, valued at \$8,348,997. Poultry of all kinds in 1910 numbered 6,087,267, valued at \$3,844,526. The acreage, production, and value of the leading crops in 1910 and 1911 were as follows:

		Acreage	Prod., bu.	Value
Corn	1911	51,000	1,838,000	\$1,652,000
	1910	50,000	1,875,000	1,500,000
Wheat	1911	480,000	8,640,000	7,603,000
	1910	550,000	9,900,000	9,306,000
Oats	1911	210,000	7,140,000	4,213,000
	1910	200,000	7,400,000	3,700,000
Rye	1911	8,000	136,000	116,000
	1910	7,000	119,000	102,000
Rice	1911	150	6,000	4,000
	1910	100	3,000	2,000
Potatoes ..	1911	72,000	9,720,000	3,748,000
	1910	70,000	9,100,000	7,735,000
Hay	1911	700,000	1,225,000	13,352,000
	1910	700,000	1,281,000	12,298,000

a Tons.

MINERAL PRODUCTION. The total value of the mineral products in the State in 1910 was \$86,688,347, compared with \$80,098,581 in 1909.

In the production of oil California stands first among the States. In 1910 the output was 73,010,560 barrels, as compared with 55,471,601 barrels in 1909. The production of 1910 does not include 4,156,450 barrels held in storage by the producers. About half this was produced in 1909 and half in 1910. The production in 1911 showed a continued increase. The preliminary estimates of the United States Geological Survey indicated an output of about 83,000,000 barrels in 1911. While consumption increased, production continued to exceed the demand and stocks increased to about \$40,000,000. Prices thereupon receded to about thirty cents a barrel. The increased production in 1911 was chiefly from the Sunset and McKittrick region, from the pools already developed in 1910. Three significant discoveries were made during the year: First, evidences of a large field in La Habra Valley; second, the discovery of a deep oil sand in the Midway field containing a heavier oil than in the higher zones; and third, the discovery at the end of the year in the Coalinga field of a zone of light oil 1500 feet below the main producing beds, in a lower geologic formation. Interesting developments were also made in the Cat Canyon field.

California in 1910 ranked second among the States in the production of gold. There were mined in that year 988,853 fine ounces, valued at \$20,441,400. This record is surpassed only by Colorado. This output was a decrease of 25,272 fine ounces from that of 1909. The output of placer gold decreased while the gold production in hydraulic and dredge placer mining increased, although it fell off heavily in drift mining and over fifty per cent. in surface sluicing. The production in 1911, according to the estimates of the Director of the Mint was 982,544 fine ounces, valued at \$20,310,987. This gave California first place in the production of gold in 1911. The production of silver in the State in 1910 was 1,840,085 fine ounces, valued at \$993,646, a decrease of 258,168 fine ounces from the production of 1909. The silver produced in 1911, according to the figures of the Director of the Mint was 2,727,336 fine ounces, valued at \$1,500,035. The de-

crease in the production in 1911 was due to the litigation concerning smelter fumes in the copper-mining industry which caused some of the larger copper properties to be closed altogether and others to be worked on part time only. A large portion of the silver mined in the State is produced from the copper mines.

The State produces a large amount of copper. The output in 1910 was 47,760,200 pounds of blister copper, as compared with 53,568,708 pounds in 1909. The reduction was due to the necessity of eliminating from the smelter smoke ingredients injurious to vegetation. This resulted in a decreased output by all the smelters of the Shasta county district and the closing down of one. The same cause would decrease the output for 1911. The State ranks sixth among the producers of copper.

The output of coal in California is small and the production in 1910 was only 11,164 short tons, valued at \$18,336. While the State in 1909 showed the largest percentage of increase among the coal-producing States, in 1910 its percentage of decrease was the smallest. Both changes were due to fluctuations in operations of a single company, the Stone Canyon Consolidated Company in Monterey county. This company has been engaged for several years in developing the property and building a railroad, but on account of unforeseen difficulties, its resources were exhausted and work was suspended in October, 1909. All the coal produced in 1910 came from Amador and River-side counties.

The State is the chief producer of quicksilver. The output in 1911 was 19,131 flasks, valued at \$880,217, a gain of 1920 flasks, and \$79,733 over 1910.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions included two State prisons, five hospitals for the insane, an institution for the feeble-minded, industrial home for the adult blind, and an institution for the education of the deaf and blind. The administration of these institutions is in the hands of the State Board of Charities, consisting of six members. At the legislative session of 1911 many important measures relating to charities and corrections were passed. Among these were a new juvenile court law and a law creating a State reformatory and making an appropriation to purchase the site and prepare plans.

POLITICS AND GOVERNMENT

The State legislature met in January, 1911, and passed an unusual number of important laws. These will be found summarized in the paragraph *Legislation* below: In addition to the work of the legislature, the political history of the State during the year was of unusual interest and importance. On January 10, John D. Works (q. v.) was elected United States senator to succeed Senator Flint. Senator Works was a candidate of the insurgent wing of the Republican party in the elections of 1910 and received a plurality of the votes cast, although the other Republican candidate, A. G. Spalding, carried a larger number of the districts of the State. The legislature by a vote of ninety-two to twenty-one decided that Mr. Works was the successful candidate for the office. The legislature approved an amendment which submitted to the popular vote the question of woman suffrage,

and this, from point of interest outside the State, was the most important question at issue in the election held on October 10. In addition to the woman suffrage amendment, however, twenty-one other amendments were submitted to the voters at this election. These included the initiative and referendum, and the provision for the recall of all officials, including judges. While the total votes for and against these measures were much smaller than the vote on suffrage, the majorities for the initiative and referendum and for the recall were much larger than the majority for the suffrage amendment. The recall received a majority of approximately 100,000, while the provisions for the initiative and referendum were carried by over 60,000. The vote on the woman suffrage amendment was so close that the first reports indicated its defeat. It was, however, carried by a majority of about 3500. In addition to those mentioned above, the amendments carried provided for employers' liability, empowered the Railway Commission to fix rates, prevent discrimination, and regulate public service corporations, extended the powers of the municipalities and made their officers more fully responsible to the popular will, prohibited the setting aside of verdicts on criminal cases on purely technical grounds, and provided that after the introduction of bills in the legislature there should be a recess of thirty days for their consideration, after which no bills may be introduced except by a three-fourths vote. There were two other elections in the State during the year which were of unusual importance. The first of these was the city election in San Francisco, which was held on November 8. The rival candidates for mayor were James Rolph, Jr., a prominent merchant, and Mayor McCarthy, who was a candidate for reelection. The contest was between the Labor party, to which the city officers belonged, and the so-called Citizens' ticket, which nominated Mr. Rolph. Mr. Rolph defeated Mayor McCarthy by a large majority. The former's vote was the largest ever cast in the city. Only three representatives of union labor won places on the Board of Supervisors, while thirteen were elected by the Citizens' ticket.

The municipal election held in Los Angeles on December 5 was the first held after the passage of the woman suffrage amendment. It marked, in addition, a contest between the Socialist party and the so-called Good Government ticket, which had as its candidate Mayor Alexander, for reelection. The Socialists had nominated as their candidate Job Harriman, who was one of the counsel for the McNamara brothers (see below). The confession of the McNamaras, which came several days before the election, without doubt had some influence on the vote cast for Mr. Harriman, although his motives in the affair were not discredited. The election board had the largest registration in the history of the city. Strong effort was made to have women register and this was eminently successful. Over 75,000 women registered for voting before the day of election. The total registration was over 160,000. At the election on December 5 the Good Government candidate was elected by a large majority. The total vote was Alexander 83,978, Harriman 52,293. The women voted in large numbers, and it is generally conceded that their votes carried the election decisively for

Mr. Alexander. This is the first election in a large city in which women have voted for municipal officers.

DYNAMITING CASES. The arrest, trial, and confession of J. B. and J. J. McNamara, charged with the destruction of the building of the Los Angeles Times in October, 1910, overshadowed in general interest all other events of the year in California. As a result of this outrage, twenty-one lives were lost and the building owned by Harrison Gray Otis, the editor of the paper, was wrecked. Mr. Otis had for years carried on a war with the labor unions and he had been the object of bitter attack on the part of organized labor. After vain attempts to detect the perpetrators of the crime, the city authorities of Los Angeles called in William J. Burns and as the result of his investigations John J. McNamara, secretary of the International Association of Bridge and Structural Iron Workers, James B. McNamara, his brother, and Ortie McManigal were arrested on the charge of having been involved in the destruction of the building. These arrests were brought about chiefly as the result of certain pieces of evidence found at the scene of the explosion, especially the remains of a battery which included an ingenious arrangement by which an alarm clock was used to set off a quantity of nitroglycerine. Similar articles had been found in various parts of the country where like explosions had occurred and by a careful following of these clues Mr. Burns became convinced of the guilt of the McNamaras and McManigal. The latter made a confession which involved the others arrested and two men, M. A. Schmidt and David Kaplan. He confessed that the dynamite used in these explosions and others had been stored in Tiffin, O., and Indianapolis, where it could be found as occasions arose. McManigal confessed altogether to complicity in fifteen dynamitings. The McNamara brothers asserted their innocence and ascribed their arrest to a capitalist plot and manufactured evidence. Indictments were found against J. J. McNamara in Indianapolis. These charged him with conspiracy to destroy a railroad bridge at Peoria, Ill., and with storing explosives in Indianapolis. After considerable legal friction, which included the arrest of Mr. Burns for kidnapping McNamara, the prisoners were finally taken to Los Angeles on requisitions from the government of California. On July 12, the McNamara brothers pleaded not guilty to nineteen charges of murder made against them. Much sympathy was shown them by labor organizations throughout the country apparently convinced of their innocence, and a large fund was raised for their defense. Clarence Darrow was engaged to defend them, and associated with him was Job Harriman of Los Angeles, who later became candidate for mayor of the city (see above). During the period between the lodgment of the prisoners in Los Angeles jail and the trial, which began on October 12, much additional evidence was gathered by the attorneys for the government. The trial was long delayed on account of the difficulty of selecting a jury, and after this was secured, various attempts to bribe jurors were discovered, although the attorneys for the defense were acquitted of complicity in these attempts. The trial had proceeded for some weeks when it came to a dramatic end on December 1 by the confession of both the Mc-

Namaras that they were guilty of the crimes charged. J. B. McNamara was accused in the indictment of having actually set off the explosion which destroyed the Times building, while his brother was charged with complicity and with having formulated the plans. This confession produced a great sensation throughout the country. It came with especial force to the officials of the labor unions, who, resting on the statements of the two brothers of their innocence, had gathered large sums of money for their defense. Charges were made by Mr. Burns that Samuel Gompers, president of the American Federation of Labor, had known for many months of the guilt of the prisoners. This Mr. Gompers vehemently denied. As far as was apparent, no evidence was adduced at the end of the year to connect Mr. Gompers and other high labor officials with the dynamiting outrages or with knowledge of the guilt of the McNamaras. The two prisoners received sentence several days after their confession. J. B. McNamara was sentenced to prison for life and J. J. for twenty-one years. Sentence was suspended in the case of McManigal, pending further investigations in which he was to be employed as a witness. Following the disclosures made in the trial and confessions, investigation was at once begun by a federal grand jury, although the United States government has no power to indict men for crimes committed under State jurisdiction. It has the power, however, to bring indictments for illegal transportation of explosives by interstate commerce. On December 30, indictments were found in Los Angeles against nine men, four of whom were prominent in the circles of organized labor in San Francisco and Salt Lake City. The men indicted were Olaf A. Tveitmoe, secretary and treasurer of the State Building Trades Council; Anton Johansen, general organizer of the council; E. A. Clancy, former vice-president of the Bridge and Structural Iron Workers' International Union and a member of the executive board of the State Building Trades Council; J. E. Munsey, business agent of the Structural Iron Workers, Ortie McManigal, J. B. McNamara and J. J. McNamara, M. A. Schmidt, and David Kaplan. The two latter have been fugitives from justice since the dynamiting of the Times building. In these indictments the prisoners were charged with being parties to and engaging in a conspiracy to commit an offense against the laws of the United States in carrying explosives from one State to another. There were four counts in each indictment and the maximum penalty in each is a fine of \$10,000 or two years' imprisonment or both. Government investigations were being continued at the end of the year.

OTHER EVENTS. On February 28, the Supreme Court of the United States handed down a decision setting aside an order made by it previously, granting a rehearing in the case of Abraham Ruef who was convicted in December, 1910, and was sentenced to fourteen years in prison for bribery. As a result of this decision, Ruef, who had been at liberty under \$350,000 bail, was finally, on March 7, taken to San Quentin prison to serve his term.

LEGISLATION. The legislature of 1911 enacted many important laws. Among these was a measure providing for the submission of an amendment to the constitution, placing the con-

trol of all public utilities of the State in the hands of an administrative body. This amendment permits municipalities to retain or after yielding it to regain the regulation of public utilities within their own borders. With this exception it gives the State complete control over its utilities: the Railway Commission was given authority to regulate railway rates, including the power to prescribe an absolute rate. Several measures were passed relating to political reforms. Constitutional amendments were instituted providing for the initiative, referendum, and recall. The direct primary law of the State was simplified and the Oregon plan for the direct election of United States senators was adopted and the party column was eliminated from the ballot. A measure providing for submission to the people of an amendment which would leave no State officer elective except the governor, lieutenant-governor, and State comptroller was defeated by a small number of votes necessary for the two-thirds majority. Several State officers were, however, omitted from the list of elective officials. The legislature adopted a workmen's compensation act and limited the hours of labor for women to eight hours for any one day or forty-eight in any one week. The criminal procedure of the State was reformed and measures were passed relating to the conservation of natural resources. Local option was adopted throughout the State and counties were given a large measure of home rule. The question of woman suffrage was submitted to the people. The legislature refused to take action on the bills relating to the admission of Oriental immigration. A measure was passed providing for a commission form of government in municipalities of the fifth and sixth classes. A tenement-house law was enacted which provides and establishes a uniform system for the plan of tenement houses throughout the State. A unique constitutional amendment submitted to the people provided for a divided session of the legislature, under which it shall meet for thirty days for the introduction of bills. It is then to adjourn for thirty days and then reconvene and pass such bills as may meet its approval. No bills are to be passed at the first session except emergency measures, and no bills shall be introduced at the second sessions except by a three-fourths vote. Another constitutional amendment for submission forbids the issuing of railroad passes to public officials, and another forbids a combination between shippers and the railroads. For child labor laws see **CHILD LABOR**.

STATE OFFICERS. Governor, H. W. Johnson; Lieutenant-Governor, A. J. Wallace; Secretary of State, F. C. Jordan; Treasurer, E. D. Roberts; Comptroller, A. B. Nye; Adjutant-General, Edwin A. Forbes; Attorney-General, U. S. Webb; Superintendent of Education, Edward Hyatt; Commissioner of Insurance, E. C. Cooper; Commissioner of Agriculture, R. L. Telfer—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, W. H. Beatty; Associate Justices, H. A. Melvin, Lucien Shaw, F. M. Angellotti, M. C. Sloss, F. W. Henshaw, W. G. Lorigan; Clerk, B. G. Taylor—all Republicans.

STATE LEGISLATURE 1911. Republicans, Senate, thirty-one; House, sixty-eight; joint ballot, ninety-nine. Democrats, Senate nine; House, twelve; joint ballot, twenty-one. Republican

majority, Senate, twenty-two; House, fifty-six; joint ballot, seventy-eight.

The representatives in Congress will be found in the article **UNITED STATES**, section *Congress*.

CALIFORNIA, UNIVERSITY OF. An institution of higher learning at Berkeley, Cal., founded in 1868. The total number of students enrolled in all departments of the university in 1911-12 was 5724. This includes the summer sessions, in which there were enrolled 1964. Including students in departments of the university other than those included in the degree-giving system, the total enrollment was 6447. The faculty numbered 400, not including readers and laboratory assistants. F. G. Cottrell, assistant professor of physical chemistry, resigned during the year to accept a position with the United State Bureau of Mines. H. A. Overstreet, associate professor of philosophy, resigned to accept a position as head of the department of philosophy in the College of the City of New York. Dr. Herbert E. Bolton was appointed professor of American history. F. J. Teggart became associate professor of Pacific Coast history. Dr. Frederick P. Gay was called to the professorship of pathology. Dr. David P. Barrows, formerly director of education for the Philippine Islands, was appointed professor of political science and dean of the Graduate School. Among the noteworthy benefactions received during the year was one from Mrs. Phæbe A. Hearst of \$10,452 for scholarships and other items; from Miss Annie M. Alexander, \$11,743 for the support of the Museum of Vertebrate Zoology. Mrs. Jane K. Sather gave for building a campanile \$200,000, together with \$23,000 for chimes. Endowments of \$100,000 each were received for chairs of history and classics and \$25,000 for a law library. Two new buildings were occupied during the year—the University Library, erected through the bequest of Charles Franklin Doe, and Boalt Hall of Law, erected at a cost of \$150,000, of which \$100,000 was given by Mrs. Elizabeth H. Boalt, and \$50,000 by the bench and bar of California. On January 1, 1912, the Academy of Pacific Coast History became an integral part of the university directly administered by the regents. This department has under its administration the famous Bancroft Library. The library contains about 250,000 volumes. The president is Benjamin Ide Wheeler.

CAMBODIA. A French protectorate in French Indo-China (q. v.). Estimated area, 45,000 square miles. Population (1906), 1,193,534. Capital, Pnom-Penh (50,000 inhabitants). Chief products: Rice, betel, tobacco, indigo, pepper, corn, cinnamon, coffee, and cotton. Salt is mined. A cotton-seed shelling factory operates at Khsach-Kandal. The local budget for 1911 balanced at 3,242,100 piasters. Present king, Sisowath; French resident-superior, M. Outrey.

CAMEROON. See **KAMEROON**.

CAMIDGE, CHARLES EDWARD. A bishop of the Anglican church, died in May, 1911. He was born at Poppleton, York, England, in 1837 and was educated at Wadham College, Oxford. He served as rector of several churches in England and in 1882 was appointed canon of York. In the following year he was made rural dean. He was consecrated second bishop of Bathurst, New South Wales, Australia, in 1887. He was

the author of several volumes of sermons, controversial pamphlets, etc.

CAMPAIGN EXPENSES. See **ELECTORAL REFORM.**

CAMPAIGN OF 1912. See **UNITED STATES.**

CANADA, DOMINION OF. A British possession in North America. Capital, Ottawa.

AREA AND POPULATION. The following table shows: (1) Area in square miles, inclusive of 125,756 square miles of water area, but exclusive of the territorial seas, the Gulf of St. Lawrence, and the Canadian portion of the Great Lakes; (2) population according to the census of 1901; (3) population according to the final returns of the census of April 2, 1911:

Provinces	Area	Pop., 1901	Pop., 1911
Pr. Edward Island	2,184	103,259	93,728
Nova Scotia	21,428	459,574	492,338
New Brunswick	27,985	331,120	351,889
Quebec	351,873	1,648,898	2,002,712
Ontario	260,862	2,182,947	2,523,208
Manitoba	73,732	255,211	455,614
British Columbia	312,630	178,657	392,480
Alberta	253,540	72,841	374,663
Saskatchewan	250,650	91,460	492,432
Yukon	196,976	27,219	8,512
North-West Territories:			
Keewatin	516,571	9,800	16,951
Mackenzie	562,182	5,216	
Ungava	354,961	5,113	
Franklin	500,000	.....
Total	3,745,574	5,371,315	7,204,527

The official report of the 1911 census includes the results of planimetric calculations of provincial areas. The figures for these areas are the same as those given in the foregoing table for the first six provinces named, and are as follows for the others: British Columbia, 355,855 sq. miles; Alberta, 255,285; Saskatchewan, 251,700; Yukon, 207,076; North-West Territories, 1,921,685; total Canada, 3,729,655. The returns of the census were disappointing, falling considerably short of expected results; the official estimate of March 31, 1910, was 7,489,781, or some 285,000 more than the census showed a year later. The rural population in 1911 was 3,924,083 and the urban 3,280,444, against 3,369,018 and 2,002,297 respectively in 1901. The increase of the rural population in the decade was therefore 16.48 per cent. and of the urban 63.83 per cent. The increase per cent., of total population, by provinces was: Nova Scotia, 7.13; New Brunswick, 6.27; Quebec, 21.46; Ontario, 15.58; Manitoba, 78.52; British Columbia, 119.68; Alberta, 413.08; Saskatchewan, 439.48; total Canada, 34.13. The following showed a decrease: Prince Edward Island, 9.23 per cent.; Yukon, 68.73; North-West Territories, 15.79. Preliminary 1911 returns for the larger cities: Montreal, 466,197; Toronto, 376,240; Winnipeg, 135,430; Vancouver, 100,333; Ottawa, 86,340; Hamilton, 81,879; Quebec, 78,067; London, 46,177; Halifax, 46,081; Calgary, 42,763; St. John, 42,363; Victoria, 31,620; Regina, 30,210. Arrivals at ocean and inland ports in years ending March 31: 1908, 262,469 (of whom 120,182 from United Kingdom and 58,445 from United States); 1909, 146,908 (52,901 and 59,933); 1910, 208,794 (59,790 and 103,984).

EDUCATION. Public instruction is controlled by the separate provincial governments. Primary education is free and, except in Quebec and Manitoba, compulsory. Educational statistics by provinces follow:

Alberta. In 1908 there were 851 schools (including nine separate schools for Roman Cath-

olics), with 1192 teachers and 39,653 pupils. Expenditure, \$2,636,835.

British Columbia. For year ending June 30, 1910: Enrollment in public schools, 39,822 (boys 20,449, girls 19,373); average daily attendance, 28,094 (70.54 per cent.); teachers, 1037; expenditure, \$1,917,236 (including \$612,053 for education proper by the province and \$1,098,660 by municipalities, etc.).

Manitoba. For year ending December 31, 1910: Enrollment, 76,247; average attendance, 43,885 (57.55 per cent.); teachers, 2774; expenditure, \$4,000,671 (including \$1,327,010 for teachers' salaries). School departments in operation, 2227 (against 1943 in 1907); collegiate institutes, 8; high schools, 15; intermediate schools, 48; pupils above eighth grade, 5653.

New Brunswick. During the year ending June 30, 1910, there were enrolled in the public schools 68,154 pupils, against 67,785 in 1909. For the term ending June 30, 1910: Enrollment, 62,994; average attendance, 42,418 (67.33 per cent.); teachers, 1974; schools, 1860 (1902 in preceding term); provincial grants, \$873,696 (including \$580,069 voted at school meetings, etc.).

Nova Scotia. For the term ending July 31, 1910: Public schools (common and high), 2579, with 2723 teachers, 102,035 pupils enrolled, and 65,629 in average attendance (about 70 per cent.). Pupils enrolled in common schools, 93,378; high schools, 8657; technical schools, 2183; government night schools, 123; grand total, 104,341 (103,970 in 1909). Expend. for the year, \$1,265,233 (of which \$357,282 provincial grants).

Ontario. Statistics for 1909: 1. *Elementary schools:* (a) Public schools, 5913; enrollment, 401,268; average attendance, 240,008 (59.81 per cent.); teachers, 9185; expenditure, \$7,321,239 (\$4,600,652 for teachers' salaries). (b) Roman Catholic separate schools, 467; enrollment, 55,034; attendance, 34,553 (62.78 per cent.); teachers, 1089; expenditure, \$820,184 (\$407,890 salaries). (c) Protestant separate schools (included with (a) above), 6; enrollment, 402; attendance, 250 (62.11 per cent.). (d) Kindergartens, 165; enrollment, 17,816; attendance, 6523; teachers, 312. (e) Night schools (1909-10), 15; enrollment, 889; attendance, 449; teachers, 31. 2. *Secondary schools:* (a) High schools (including 43 collegiate institutes), 145; enrollment, 33,101; attendance, 20,791; teachers (January, 1910), 820; expenditure, \$1,621,637 (\$941,657 salaries). (b) Continuation schools (included in public and separate schools above) doing high-school work, 128; attendance, 5866. 3. *General.* Total enrollment in elementary and secondary schools, 508,563; attendance, 302,324; grand total in elementary, secondary, normal, and model schools, 510,701, against 504,573 in 1908; grand total of schools in operation, 6489; grand total paid for educational purposes, \$9,763,060 (\$4,643,571 salaries of public and separate teachers, who numbered 10,391, of whom 1860 male).

Prince Edward Island. For year ending September 30, 1910: Schools, 478; departments, 591; teachers, 591; enrollment, 17,932; attendance, 11,632 (64.86 per cent.); expenditure, \$181,572 (of which government \$127,547).

Quebec. Statistics for the year 1909-10: *Elementary schools:* 5720; teachers, 6901; enrollment, 218,914; attendance, 162,928 (74.42 per cent.). *Model schools:* 661; teachers, 2988; enrollment, 100,492; attendance, 82,514 (82.11 per cent.). *Academies:* 236; teachers, 2491;

enrollment, 55,141; attendance, 47,593 (86.31 per cent.). *Normal schools*: 11; teachers, 128; enrollment, 787; attendance, 780. *Schools annexed to normal schools*: 11; teachers, 45; enrollment, 1246; attendance, 954. *Roman Catholic classical colleges*: 19; teachers, 642 (men); enrollment, 6599 (boys); attendance, 6053. *Universities*: 4; teachers, 476 (men); enrollment, 2963 (of whom 135 girls); attendance, 2960. *Schools for deaf, dumb, and blind*: 4; teachers, 76; enrollment, 537. *Schools of art and design*: 13; teachers, 56 (men); enrollment, 2632 (boys); attendance, 1399. *Night schools*: 81; teachers, 180; enrollment, 5634; attendance, 3266. *Total schools*: 6700; teachers, 14,000 (men, 3128, women, 10,872); lay 8195, religious 5805; enrollment, 394,945 (boys 200,126, girls 194,819), against 387,393 in 1908-9; attendance, 308,982 (78.23 per cent.). Aggregate contributions for education in 1908-9, \$5,517,866; in 1909-10, \$6,210,530.

Saskatchewan. For year ending December 31, 1909: Public elementary schools, 1692; departments, 1937; enrollment, 53,909; attendance, 28,202 (52.25 per cent.); 13 high schools and a normal school. Expenditure, \$3,032,999 (of which \$1,044,011 teachers' salaries).

AGRICULTURE. The year 1910 showed a decline in the value of agricultural products as compared with 1909, the record year in the history of the country. Exclusive of British Columbia, which is not included in Canadian agricultural statistics, the area in field crops in 1908 was 27,505,603 acres and the value of the products, computed at local market prices, \$432,534,000; in 1909, 30,065,556 acres and \$532,092,100; in 1910, 32,711,062 and \$507,185,500. Values by provinces in 1909 and 1910 respectively: Ontario, \$200,398,000 and \$204,002,000; Quebec, \$90,071,000 and \$97,107,000; Saskatchewan, \$97,677,500 and \$84,138,400; Manitoba, \$74,420,500 and \$55,206,000; Nova Scotia, \$22,319,300 and \$21,203,000; New Brunswick, \$18,150,900 and \$18,959,000; Alberta, \$20,741,000 and \$16,582,000; Prince Edward Island, \$9,213,900 and \$9,998,100.

Final estimates of the acreage in field crops and value of yield in 1910, 1909, and 1908:

Crops	1000 ac.	1000 bu.	Per ac.	1000 \$
Wheat	'10 9,295	149,990	16.14	112,973
.....'09	7,750	166,744	21.51	141,320
.....'08	6,610	112,434	17.00	91,228
Oats	'10 9,864	323,449	32.79	114,365
.....'09	9,303	353,466	38.00	122,390
.....'08	7,941	250,377	31.64	96,489
Barley	'10 1,834	45,148	24.62	21,400
.....'09	1,865	56,398	29.71	25,434
.....'08	1,746	46,762	26.79	21,353
Rye	'10 84	1,544	18.35	1,084
.....'09	91	1,715	18.78	1,254
.....'08	100	1,711	17.05	1,262
Peas	'10 386	6,538	16.93	5,755
.....'09	393	8,145	20.17	7,222
.....'08	413	7,060	17.09	5,970
Buckwheat	'10 271	7,244	26.77	4,078
.....'09	232	7,806	27.64	4,554
.....'08	291	7,153	24.55	4,215
Mixed grain	'10 576	19,434	33.76	9,953
.....'09	582	19,391	33.31	10,916
.....'08	582	19,049	32.73	10,140
Flax	'10 477	3,802	7.97	7,899
.....'09	138	2,213	15.98	2,761
.....'08	139	1,499	10.76	1,457
Beans	'10 53	1,178	22.21	2,094
.....'09	56	1,325	23.67	1,881
.....'08	60	1,245	27.00	1,988
Corn for husking	'10 328	18,726	57.00	10,135
.....'09	353	19,258	54.62	12,760
.....'08	366	22,872	62.45	11,837
Potatoes	'10 503	74,048	147.14	33,446
.....'09	514	99,087	192.96	36,399
.....'08	504	73,790	132.00	34,819

Crops (cont.)	1000 ac.	1000 bu.	Per ac.	1000 \$
Turnips, etc. ....'10	237	95,207	402.36	21,444
.....'09	248	107,725	434.29	18,198
.....'08	271	101,248	373.00	17,532
Hay	'10 8,515	15,497	1.82	149,716
.....'09	8,210	11,877	1.44	132,288
.....'08	8,211	11,450	1.39	121,884
Fodder corn	'10 272	2,551	9.38	11,957
.....'09	270	2,780	10.30	15,116
.....'08	260	2,928	11.27	11,782

Production, in thousands of bushels, of the three great cereals, by provinces (figures for 1911, though not "preliminary," are subject to slight revision):

Provinces	Years	Wheat	Barley	Oats
Saskatchewan	'11	87,180	5,521	89,634
"	'10	81,139	3,598	61,367
"	'09	85,197	4,493	91,796
"	'08	84,742	1,952	29,205
Manitoba	'11	57,934	14,153	57,515
"	'10	41,159	13,826	41,742
"	'09	52,706	20,866	55,267
"	'08	50,269	17,093	44,711
Alberta	'11	34,930	5,240	58,135
"	'10	6,593	3,953	23,644
"	'09	9,579	5,999	38,376
"	'08	6,842	3,881	22,802
Ontario	'11	20,109	16,069	84,429
"	'10	17,805	20,727	128,917
"	'09	16,262	20,952	109,192
"	'08	18,057	21,124	103,821
Quebec	'11			
"	'10	1,827	2,547	48,927
"	'09	1,679	2,604	42,501
"	'08	1,424	2,170	35,478
All Canada	'11	202,997	43,579	248,774
"	'10	149,990	45,148	323,449
"	'09	166,744	55,398	353,466
"	'08	112,434	46,762	250,377

Livestock estimates, June, 1909, and June, 1910, respectively, with values on latter date: Horses on farms, 2,132,489 and 2,213,190 (\$293,398,000); milch cows, 2,849,306 and 2,853,951 (\$121,613,000); other horned cattle, 4,383,779 and 4,260,963 (\$131,781,000); sheep, 2,705,390 and 2,698,470 (\$15,819,000); swine, 2,912,509 and 2,753,064 (\$31,157,000); total value, \$593,768,000, against \$558,819,000 in 1909.

HOMESTEADS. Ordinary homestead entries and preëmptions in 1909 and 1910:

	Homesteads		Preëmptions	
	1909	1910	1909	1910
Manitoba	2,526	3,132	.....	.....
Saskatchewan	19,354	26,378	8,570	10,795
Alberta	14,907	18,013	6,043	7,557
British Columbia	274	234	.....	.....
Total	37,061	48,257	14,613	18,352

Purchased homesteads in 1909 numbered 997 and in 1910, 1863; entries for South African volunteer homesteads, 2624 and 2186. (See AGRICULTURE.)

MINING. The following table shows the official valuation of the principal mineral products and of the total product in 1900, 1905, 1909, and 1910 in thousands of dollars:

	1900	1905	1909	1910
Silver	2,740	3,615	14,179	17,580
Nickel	3,328	7,551	9,462	11,181
Gold	27,908	14,159	9,382	10,206
Copper	3,066	7,498	6,815	7,094
Pig iron*	583	1,032	2,222	1,651
Lead	2,761	2,677	1,692	1,216
Coal	13,742	17,520	24,781	30,910
Cement	663	1,924	5,346	6,412
Bricks	2,275	3,934	4,911	5,992
B'd'g stone	1,520	1,830	3,127	3,650
Asbestos	748	1,503	2,285	2,556

* From Canadian ore.

	1900	1905	1909	1910
Gypsum	259	586	810	934
Petroleum	1,151	856	560	389
Total metals	40,522	36,946	44,157	49,439
" non-metals	23,899	32,133	47,675	57,385
" minerals	64,421	69,079	91,831	106,824

The total mineral production was valued at \$106,823,023 in 1910, against \$91,831,441 in 1909, \$64,420,983 in 1900, and \$16,763,353 in 1890. About half of the coal is now produced in Nova Scotia, two-fifths of the gold in Yukon, over a third of the nickel in Ontario, and almost all of the silver in Ontario (at the Cobalt mines), and of the asbestos in Quebec. Mineral output by provinces in 1909 (final figures) and 1910 (preliminary): Ontario, \$37,374,577 and \$43,017,026; British Columbia, \$22,479,006 and \$24,547,817; Nova Scotia, \$12,504,810 and \$14,054,534; Quebec, \$7,086,265 and \$8,103,275; Alberta, \$6,047,447 and \$7,876,458; Yukon, \$4,032,678 and \$4,737,375; Manitoba, \$1,193,377 and \$1,470,776; New Brunswick, \$657,035 and \$585,891; Saskatchewan, \$456,246 and \$557,806. The Ontario Bureau of Mines values the 1910 output at \$39,313,895, against \$32,981,375 for 1909 and \$17,854,296 for 1905. Discrepancies between the bureau figures and those of the Dominion Department of mines are due to differences in method of computation.

FISHERIES. The annual catch has been valued as follows: 1904, \$23,516,439; 1905, \$29,479,562; 1906, \$26,279,485; 1907, \$25,490,349; 1908, \$25,451,094; 1909, \$29,629,170. In the latter two years the values by provinces were: British Columbia, \$6,465,038 and \$10,314,755 respectively; Manitoba, Alberta, Saskatchewan, and Yukon, \$861,392 and \$1,373,181; New Brunswick, \$4,754,298 and \$4,676,314; Nova Scotia, \$8,009,838 and \$8,081,111; Ontario, \$2,100,078 and \$2,177,813; Prince Edward Island, \$1,378,624 and \$1,197,556; Quebec, \$1,881,817 and \$1,808,436. The most valuable fish taken in 1908 and 1909: Salmon, \$4,814,250 and \$8,204,524; cod, \$3,361,409 and \$3,812,807; lobsters, \$4,200,279 and \$3,057,147; herring, \$2,471,063 and \$2,754,751; halibut, \$1,405,316 and \$1,240,486; whitefish, \$819,026 and \$1,000,127; mackerel, \$1,336,810 and \$948,071; smelts, \$470,253 and \$868,843; haddock, \$716,820 and \$829,554; trout, \$666,322 and \$621,124; pickerel, \$502,076 and \$685,494; sardines, \$684,808 and \$551,294; fish for bait, \$496,022 and \$574,762. Persons employed in the fishing industry in 1909, 90,357; capital invested, \$17,357,932.

MANUFACTURES. The industrial census taken in 1906 for the calendar year 1905 showed 15,796 establishments, with a capital of \$846,585,023; wage earners, 356,034; wages for labor, \$134,375,925; and value of products, \$718,352,603 (Ont., \$367,850,002; Que., \$219,861,048).

COMMERCE. The following table shows imports of merchandise for home consumption, of total merchandise, of coin and bullion (in thousands of dollars), and total imports during the last three years, ending March 31:

Years	Mdse. Home Consup.	Total Mdse.	Coin and B.	Total Imports
1909	288,217,515	299,768,166	9,988	309,756,608
1910	369,815,427	385,835,103	6,018	391,852,692
1911	451,745,108	462,041,330	10,206	472,247,540

For the same years, exports of domestic merchandise, of total merchandise, of coin and bul-

lion (in thousands of dollars), and total exports were as follows:

Years	Domest. Mdse.	Total Mdse.	Coin and B.	Total Exports
1909	242,603,584	259,922,366	1,590	261,512,159
1910	279,247,551	298,763,993	2,695	301,358,529
1911	274,316,553	290,000,216	7,196	297,196,365

In the fiscal year 1910, dutiable imports of merchandise for consumption amounted to \$227,264,346; free, \$142,551,081; import duties, \$61,024,239; in 1911, \$282,723,812, \$169,021,296, and \$73,312,368, respectively.

Principal classifications of imports for consumption for the year ended March 31, 1910, and 1911, respectively: Metals, minerals, and their manufactures, \$78,385,037 and \$105,726,942 (including iron and steel, \$59,462,946 and \$81,771,478); coal, coke, etc., \$20,245,038 and \$32,264,134; cotton and its manufactures, \$28,080,654 and \$32,876,059; wool and its manufactures, \$24,625,396 and \$26,382,711; sugar, molasses, etc., \$14,946,412 and \$17,480,856; settlers' effects, \$10,273,428 and \$14,072,611; wood and manufactures, \$11,462,522 and \$17,237,372; drugs, dyes, chemicals, etc., \$10,095,075 and \$12,178,260; fruits, \$9,431,209 and \$11,955,008; hides and skins other than furs, \$8,237,014 and \$8,105,330; leather and manufactures, \$4,202,934 and \$5,331,710; furs and manufactures, \$5,768,075 and \$5,001,070; silk and manufactures, \$5,983,340 and \$6,930,448; rubber, gutta percha, and manufactures, \$5,954,903 and \$6,950,583; oils, \$5,543,462 and \$7,869,288; tea, \$5,347,854 and \$5,654,833; paper and manufactures, \$1,646,014 and \$5,537,411; electrical apparatus, \$3,688,538 and \$5,129,677; tobacco, \$4,030,670 and \$4,816,292; vehicles, \$3,636,273 and \$7,257,859; books, etc., \$4,054,601 and \$4,588,945.

The following table shows by great classes the values of Canadian produce exported and of total exports (that is Canadian and foreign produced combined) in the years ending March 31, 1910 and 1911 (a, signifies produce of mine; b, produce of fisheries; c, produce of forest; d, animals and their produce; e, agricultural produce; f, manufactures; g, miscellaneous articles; h, total; i, coin and bullion; j, grand total):

	1910		1911	Total
	Can. prod.	Total	Can. prod.	
a	..\$40,087,017	\$40,530,843	\$42,787,561	\$43,078,440
b	..15,663,162	15,760,391	15,675,544	15,789,859
c	..47,617,033	47,688,256	45,439,057	45,597,599
d	..52,926,515	54,696,630	52,244,174	53,053,837
e	..90,433,747	102,347,694	82,601,284	90,059,113
f	..31,494,916	35,953,361	35,233,118	40,432,526
g	..125,161	1,786,818	285,815	1,988,836
h	..279,247,551	298,763,993	274,316,553	290,000,210
i	.....	2,594,536	.....	7,196,155
j	..279,247,551	301,358,529	274,316,553	297,196,365

Grain is the leading export, details of which in thousands of bushels (b) and thousands of dollars (d) are shown below for fiscal years: also, wheat flour, in thousands of barrels (b) and thousands of dollars (d), figures representing domestic exports (that is, the products of Canada).

Years	Wheat	Oats	Barley	All grain	Wh. fl.
1900—b	16,845	6,929	2,156	30,055	768
d	11,995	2,148	1,010	18,067	2,792

Cont.	Wheat	Oats	Barley	All grain	Wh. fl.
1906—b	..14,700	2,367	1,041	19,748	1,321
d	..12,387	862	515	15,125	5,878
1909—b	..49,137	5,256	2,959	59,205	1,738
d	..48,148	2,176	1,745	53,783	7,991
1910—b	..49,741	3,402	2,045	56,867	3,064
d	..52,609	1,567	1,108	56,751	14,860
1911—b	..45,802	5,432	1,545	53,841	3,049
d	..45,521	2,145	831	49,536	13,855

Other important domestic exports, in the fiscal years 1910 and 1911 were: Lumber, \$38,490,476 and \$36,135,973; cheese, \$21,607,692 and \$20,739,507; silver, \$15,009,937 and \$17,269,168; living animals, \$11,798,028 and \$9,598,885; meats, \$8,013,680 and \$9,001,559 (bacon, \$8,019,454); flaxseed, \$3,642,476 and \$6,144,622; wood manufactures, \$6,094,844 and \$6,061,306 (wood pulp, \$5,204,579 and \$5,715,532); wood for pulp, \$6,076,628 and \$6,092,715; copper, \$6,023,925 and \$5,575,033; gold, \$6,016,126 and \$5,344,465; hides and skins other than furs, \$5,430,591 and \$4,607,545; furs, \$3,716,320 and \$4,277,744; cod-fish, \$3,619,853 and \$4,389,155; salmon, \$4,887,632 and \$4,091,910; paper, \$3,156,096 and \$3,912,196; nickel, \$3,842,332 (in 1911); lobsters, \$3,218,466 and \$3,265,294.

In the years ending March 31, 1910 and 1911, merchandise imported for home consumption and domestic merchandise exported are shown below by countries, in thousands of dollars:

Countries	Imports		Exports	
	1910	1911	1910	1911
Great Britain	95,236	109,935	129,483	132,157
Br. W. Indies....	5,778	6,887	3,535	4,459
British India	3,526	4,370	58	132
British Guiana ...	2,980	3,392	586	614
Newfoundland ...	1,468	1,817	3,807	3,714
Australasia	1,198	1,418	4,448	4,886
British Africa ...	1,042	705	2,349	2,329
Other British	454	962	673	662
Total Br. Emp.	111,782	129,468	154,937	148,954
United States	217,502	274,845	104,200	104,131
France	10,110	11,564	2,601	2,588
Germany	7,935	10,047	2,066	1,974
Belgium	3,230	3,614	1,840	1,908
Japan	2,180	2,422	659	616
Argentina	2,182	2,305	2,868	3,022
Netherlands	2,010	1,821	1,377	1,008
Other foreign	12,875	15,659	8,700	10,115
Total foreign	258,033	322,278	124,310	125,363
Grand total	369,815	451,746	279,248	274,317

For the fiscal years 1910 and 1911 total imports and total exports by provinces were valued as follows in thousands of dollars:

Provinces	Imports		Exports	
	1910	1911	1910	1911
Ontario	171,026	207,201	90,287	93,965
Quebec	128,738	141,370	126,379	123,728
British Columbia..	27,091	38,693	25,068	23,017
Manitoba	25,704	34,855	4,192	3,135
Nova Scotia	14,736	16,749	19,557	20,001
New Brunswick...	10,829	11,474	32,111	28,273
Saskatchewan ...	6,126	11,024	2,912	4,057
Alberta	5,948	9,095	161	365
Pr. Edward Island	654	657	442	436
Yukon Ter.....	952	1,077	248	221
British prepaid postal parcels..	49	53	.....	.....
Total	391,803	472,194	301,359	297,196
Grand total	391,853	472,248	301,359	297,196

COMMUNICATIONS. Total single-track rail-

way mileage in operation June 30, 1906, 21,429; 1909, 24,104; 1910, 24,731. For fiscal years 1909 and 1910 respectively: Gross earnings, \$145,056,336 and \$173,956,217; working expenses, \$104,800,084 and \$120,405,440; net earnings, \$40,456,252 and \$53,550,777; capital, \$1,308,471,416 and \$1,410,297,687. Mileage in operation by provinces in 1909 and 1910 respectively: Alberta, 1322 and 1488; British Columbia, 1796 and 1832; Manitoba, 3205 and 3221; New Brunswick, 1547 and 1522; Nova Scotia, 1351 and 1351; Ontario, 8220 and 8230; Prince Edward Island, 269 and 269; Quebec, 3663 and 3795; Saskatchewan, 2631 and 2932; Yukon, 91 and 91. Electric railways, June 30, 1909, 989 miles; 1910, 1049; earnings for fiscal year 1910, \$17,076,124; working expenses, \$10,121,781; capital, \$102,044,979. Canada has an extensive system of canal, river, and lake navigation. In 1910 there were 7749 miles of government telegraph lines (including 255 miles of cables), with 479 offices, chartered companies' lines, 28,726 miles, with 145,997 miles of wire and 2954 offices. Post offices, March 31, 1908, 11,823; 1909, 12,479; 1910, 12,887, the latter number being distributed as follows: Alberta, 695; British Columbia, 570; Manitoba, 700; New Brunswick, 1410; Nova Scotia, 1953; Ontario, 3748; Prince Edward Island, 467; Quebec, 2344; Saskatchewan, 983; Yukon, 20. Post offices, March 31, 1911, 13,324. Postal revenue in fiscal year 1911, \$12,212,952; expenditure, \$11,020,223.

During the year 1911 there was marked progress in railway building. The development of Transcontinental line and other extensive work continued without abatement. The eastern part of the Transcontinental line, extending from Moncton in New Brunswick to Winnipeg, was being built by the Dominion government, while the western portion from Winnipeg to Prince Rupert of the Grand Trunk Pacific Railway was under construction by the Grand Trunk Pacific Company, by whom the entire line will be operated when completed. Progress in track laying in western Canada up to December 2 was operated as follows: On the main line rail head had reached 1075.5 miles west of Winnipeg. On the Alberta coal branch, which was being built from Bickerdike into the Brazeau coalfields, the track had reached mile 21.4 south of Bickerdike. On the Tofield-Calgary branch rails had been laid 105.3 miles south of Tofield. On the Young-Prince Alberta branch, rail head was at mile 67.3 north of Young. The entire portion of the branch between Melville and Regina had been completed, a mileage of 98.4. The fifty-two miles on the Melville-Canora branch was also completed. On the Moosejaw branch between Regina and Moosejaw, track was laid 141 miles west of Regina. On the mountain division rails had been laid to the mouth of the tunnel at mile 104 east of Prince Rupert. The government section had virtually been completed from Moncton to Quebec, and about three-quarters finished beyond.

The Canadian Northern Railway was also making substantial progress, the work on the eastern section reaching the Rocky Mountains, while on the Pacific slope an advance from Vancouver towards Yellowhead Pass had been made. The Canadian Northern was developing a number of important branch lines in the prairies, and in the east a direct line between Ottawa and Toronto. The Canadian Pacific had virtually completed a line from Vic-

toria Harbor, at the southeast point of Georgian Bay, to Bethany, near Peterborough, Ontario, with the object of connecting this new grain port with the main system. Like the other companies, The Canadian Pacific Railway has been increasing its prairie mileage during the year, and it would seem as if ample facilities for this great wheat-growing region were being developed. Minor construction was also recorded in all of the provinces of the Dominion, and the general activity in Canadian railway building recalled the progress of former years in the United States.

The Canadian Pacific Railway showed an important increase in 1911 over the previous year. There were in operation 10,481 miles of line, and 292 miles belonging to other lines, while 983 miles were in course of construction, making a total of 11,756 miles. For 1910 similar figures were 10,271 miles in working, 262 other lines operated, and 471 miles in course of construction, or a total of 11,004 miles. This was a substantial gain over 1905 when the system aggregated 9487 miles, of which 8563 were in working, 438 miles were operated for other lines, and 481 miles were in course of construction.

SHIPPING. In the fiscal year 1911, there entered 15,235 vessels of 11,919,339 tons register (15,008 of 10,950,000 tons in 1910) and cleared 14,769 vessels of 10,377,847 tons (14,776 of 9,853,713 tons in 1910). British and Canadian vessels entered 8862 of 8,832,905 tons, and cleared 8615 of 7,221,430 tons.

FINANCE. The table below shows in dollars Dominion expenditure and revenue for fiscal years ending March 31. Expenditure chargeable to Consolidated Fund is designated (a), expenditure chargeable to Capital (b), railway subsidies (c), other charges (d), total disbursements (e), Consolidated Fund receipts (f), other receipts (g), total receipts (h), difference between receipts and expenditures (i), sinking funds (j), net difference between receipts and expenditures, i. e., net excess of expenditure (k):

	1908	1909	1910	1911
a ..	76,641,452	84,064,232	79,411,747	87,774,198
b ..	30,429,907	42,593,167	29,756,353	30,852,963
c ..	2,037,629	1,785,887	2,048,097	1,284,892
d ..	3,469,692	4,999,238	4,179,576	2,949,197
e ..	112,578,680	133,441,524	115,395,774	122,861,250
f ...	96,054,506	85,093,404	101,503,711	117,780,410
g ...	911	456,175	112,765	103,918
h ..	96,055,417	85,549,580	101,616,476	117,884,328
i ...	16,523,263	47,891,944	13,779,298	4,976,922
j ...	2,234,263	1,922,525	1,441,031	1,203,416
k ..	14,289,000	48,969,419	12,238,267	8,773,506

Principal sources of Consolidated Fund receipts in the fiscal year 1911: Taxes, \$89,835,232 (customs \$72,965,395, excise \$16,869,837); chargeable to capital: Railways and canals, \$10,818,834; posts, 9,146,952; Dominion lands, \$3,108,736; interest on investments, \$1,668,773. Leading items of expenditure chargeable to Consolidated Fund: Collection of revenue, \$24,951,636; interest on public debt, \$12,535,851; railways and canals, \$11,123,251; subsidies to provinces, \$9,092,472; public works, \$8,621,431; posts, \$7,954,223; militia and defense, \$6,868,651; civil government, \$4,463,095. Expenditure chargeable to capital: Railways and canals, \$27,110,246; public works, \$3,742,717. Net

public debt at end of fiscal years: 1900, \$265,493,807; 1908, \$277,960,860; 1909, \$323,930,279; 1910, \$336,268,546; 1911, \$340,042,052. On the last two dates, gross public debt \$470,663,046 and \$474,941,487 respectively, and total assets \$134,394,500 and \$134,899,435 (including sinking funds \$14,782,613 and \$11,196,826).

BANKS. On November 30, 1911, the chartered banks of Canada had total assets \$1,389,053,388 and total liabilities \$1,173,438,296 (not including paid-up capital \$107,472,558 and reserve fund \$95,699,232); deposits by the public, payable in Canada, \$930,654,407; notes in circulation, \$101,943,050; balance due to provincial governments, \$25,657,904. On March 31, 1911, the 1151 post office savings banks had 147,478 open accounts with deposits and interest \$43,330,579 (average account, \$291.93); the eighteen government savings banks (of which thirteen in Nova Scotia) had deposits and interest \$14,763,752; total, \$58,094,331, against \$58,264,230 March 31, 1910.

NAVY. The Department of the Naval Service was created by a law which became effective May 4, 1910. The Dominion government bought the British first-class cruiser *Niobe*, which arrived at Halifax, October 21, 1910, and the British second-class cruiser *Rainbow*, which arrived at Esquimaux, November 7, 1910. These are for use as training ships, and the construction of other vessels is projected. Details of the *Niobe* and *Rainbow* respectively: length, 435 and 300 ft.; draught, 26 and 17.5 ft.; displacement, 11,000 and 3600 tons; horsepower, 16,500 and 9681; speed, 20.5 and 19.7 knots; complement, 705 and 273. Expenditure of the Navy Department for the fiscal year 1910-11, \$2,492,812 (naval service proper, \$1,209,983). See paragraph below under *History*.

ARMY. Canada, like other British dominions, has a military organization under the direction of a section of the Imperial General Staff, but in accordance with the provisions of the Dominion Militia acts. In 1911 the chief of the general staff and first military member of the Militia Council was Maj.-Gen. C. J. Mackenzie, C. B. Under the law of 1904 every Canadian between the ages of eighteen and sixty is liable for service, and the establishment consists of a permanent force of 235 officers and 2673 men (March 31, 1910), and an active militia. The permanent force does garrison duty and furnishes instructors for the active militia at the various schools of instruction. The active militia has an authorized establishment of 4611 officers and 51,430 men, which was considered by Sir John French, reporting on the military strength of the Dominion government, most inadequate, as a standard of 5000 officers and 100,000 men was essential, as well as many important changes in organization and administration. In 1910 3358 officers and 39,232 men were under training. It was proposed that the Kingston Military College, at which a cadet may fit himself for a commission in the imperial army, as well as in the Canadian permanent force, should be developed into a staff college, as the need of a well-trained staff was one of the great defects of the existing organization. Eight new military divisions were created in accordance with General French's recommendations, and in 1911 eight British officers were appointed to coöperate with the Canadian War Office.

A reorganization of army commands was in

progress in 1911. The four military commands in Eastern Canada were reconstituted so as to form six divisional areas providing six infantry divisions and four cavalry brigades. The headquarters of these divisions were as follows: First Division, London (Ontario); Second Division, Toronto (Ontario); Third Division, Kingston (Ontario); Fourth Division, Montreal (Quebec); Fifth Division, Quebec; Sixth Division, Halifax (Nova Scotia). To each divisional area was to be appointed an officer to command the infantry division, and in addition to command and administer such other units as might be quartered in the division area. A general staff officer (second grade) was to be appointed to the staff of each divisional area. The fortress of Halifax, within the sixth divisional area, will be commanded by a selected officer. The military districts of Western Canada, Nos. 10, 11, and 13, Winnipeg, Victoria, and Calgary, were to remain temporarily as district commands.

GOVERNMENT. The executive authority is vested in the British sovereign acting through a governor-general, who is assisted by a cabinet of sixteen members. The legislative power devolves upon a parliament of two houses, the Senate (eighty-seven members, nominated for life by the governor-general) and the House of Commons (221 members, elected by popular vote). A reapportionment of the Commons is necessitated by the 1911 census. The Right Hon. Sir Albert Henry George, Earl Grey (who was appointed September 26 and assumed office December 10, 1904), was succeeded as governor-general in 1911 by the brother of the late King Edward, His Royal Highness Prince Arthur, Duke of Connaught and Strathearn, who was appointed March 6 and assumed office October 13. The cabinet of Sir Wilfrid Laurier, who as a Liberal had been prime minister since 1896, was succeeded October 10, 1911, by a Conservative cabinet as follows: Prime Minister, Robert Laird Borden; Secretary of State, Dr. William James Roche; Postmaster-General, Louis Philippe Pelletier; Minister of Marine and Fisheries, and of the Naval Service, John D. Hazen; Trade and Commerce, George Eulas Foster; Interior, Robert Rogers; Public Works, Frederick Debartzch Monk; Railways and Canals, Francis Cochrane; Finance, William Thomas White; Justice, Charles J. Doherty; Militia and Defense, Samuel Hughes; Labor, Thomas W. Crothers; Inland Revenue and Mines, Wilfrid Bruno Nantel; Customs, Dr. John D. Reid; Agriculture, Martin Burrell; without portfolio, J. A. Lougheed.

Each province has an elected legislature and an executive (lieutenant-governor) appointed by the governor-general and assisted by a responsible ministry. See articles on the several provinces.

HISTORY

THE GOVERNOR-GENERAL. At the beginning of February, 1911, the king officially announced the appointment of the Duke of Connaught as the governor-general of Canada to succeed Earl Grey. The latter left Quebec for England on October 12, his successor being at that time on his way to Ottawa to assume office. Earl Grey had wished to retire two years earlier but his resignation had been deferred for various reasons. His administration, though not con-

spicuous, had been marked by tact and by interest in Canadian advancement. To his energy was largely due the national festival on the Plains of Abraham and the dedication of the ground to public uses. Though assailed by the Nationalist group in Quebec as a propagandist of imperialism, he maintained the most cordial relations with the leaders of the main parties and won the regard of the people as a whole. He showed a marked interest in important public movements, notably the campaign against tuberculosis, national educational experiments and the conservation movement. He sought by all means to stimulate Canadian patriotism and at the same time promote the sense of British unity and loyalty to the empire. The appointment of the Duke of Connaught as his successor was received with favor.

THE RECIPROCITY AGREEMENT. The terms of the reciprocity agreement were made public in Washington in the last week of January, 1911. The chief points in it were the free exchange between the two countries of the natural products of each, especially of food, and the reduction of rates upon the manufactures of such products. The leading food products on the reciprocal lists of the proposed agreement were: Wheat and other grain, fresh fruits and vegetables, dairy products, fish, eggs, poultry, cattle, and sheep, and other live animals. Specified commodities at present free in one country were to be admitted free into the other, as for example cottonseed oil should be made free in Canada, and rough lumber should be made free in the United States. Then followed reduced identical rates in each country on secondary food products and on certain manufactured commodities, also lower Canadian duties on agricultural implements imported from the United States.

The agreement had grown out of the discussions following the passage of the Payne-Aldrich tariff law in the United States in 1909. The maximum and minimum clause of that law provided for the levying of the maximum rate of twenty-five per cent. *ad valorem* on the products of any country that granted more favorable terms to any other country than it granted to the United States. Although this clause was not aimed specifically at Canada, it was found that the latter country fell within its provision, for under the "favored nation" clause Canada granted certain privileges that it did not grant to the United States. President Taft entered soon afterwards into negotiations with the Ottawa government for mutual concessions that would remove this difficulty, offering in return for some unimportant reduction in the Canadian duties to apply the minimum tariff to Canada, and promising further to raise the question of reciprocity. The tariff was adjusted on this basis and conferences between United States and Canadian commissioners on the subject of reciprocity were held during the closing weeks of 1910. The movement was generally regarded with favor in the United States, and though it was opposed by a certain element in Congress it was passed after a short political struggle. See **UNITED STATES, History**, and **GREAT BRITAIN, History**.

RECIPROCITY AND PARLIAMENT. The reciprocity agreement came before the Canadian Parliament in February, 1911. The Liberal party stood strongly in favor of reciprocity and at first there was also a considerable element in

the Opposition that approved it. Soon, however, the Conservative party in the House united solidly against it and it was fought by the Conservative and Independent members with increasing vigor. Among the criticisms urged against it were the sweeping nature of its provisions, whose effect it was said could not be properly estimated; the opening up to the United States of Canada's natural resources, which ought to be kept and developed for the good of the Canadian people; the instability and insecurity of such an arrangement; and the danger of an absolute commercial union with the United States and, finally, of annexation. Speeches by many prominent men in the United States were quoted to show that the ulterior motive was the conquest of Canada by peaceful means. As time went on it was clear that both in Parliament and in the country general opinion on the subject was growing more sharply divided. A debate in the House at the end of February brought out many criticisms. It was said that the country was now prosperous and that the most conspicuous feature of its prosperity was Canada's independence of foreign countries. The reciprocity agreement would be followed by dislocation and temporary loss and the general effect on the volume of business would be unfavorable. It was said that certain industries would be seriously injured, if not destroyed, and that it was especially probable that the American beef trust would destroy all meat-packing industries. The provisions as to pulp and paper were condemned as unwise and it was said that the federal government should rather have supported the provinces in their conservation policy. The commercial grip of the United States on Canada was tightened and there was always a menace to the commercial independence of a smaller country in its relations to a larger one. On the other hand, Sir Wilfrid Laurier challenged the statement that the agreement would turn trade from Canadian into American channels or put an end to mutual preferential trade with Great Britain or destroy Canada's national resources or imperil her industries. And he declared that the Canadian people were not so lacking in self-respect as to think that reciprocity meant annexation.

THE GENERAL ELECTIONS. The date of the general elections was fixed as September 21, and the campaign began on August 15 with speeches by Sir Wilfrid Laurier, the premier, and Mr. Borden, the leader of the Opposition. The leading issue from the first was the reciprocity agreement with the United States, and it was soon evident that the campaign was to be the most serious electoral contest that Canada had seen since 1896. Each side prophesied success and pressed its position with great vigor, the Opposition contending that reciprocity was a revision of the tariff as the result of the conference of the United States behind closed doors, that it meant free trade in everything that the farmer produces, and Sir Wilfrid Laurier contending, on the other hand, that Canada would derive greater benefit from it than the United States, and that there was nothing in the compact to prevent the British people from giving Canada preference or to prevent Canada from extending preference to British manufacturers. In general, the Liberals had the best of the economic argument. It seemed obviously to the advantage of Canada

that she should have an increased market for the commodities in which she especially abounded, that is, the products of her farms, fisheries, forests, and mines. Natural products were Canada's chief exports, whereas the United States had already reached the limit of her agricultural production and must henceforth import foodstuffs in ever increasing quantities. Moreover, reduced duties on food and foodstuffs would lower cost of necessities to the consumers in cities and towns. The opening up to Canada with her seven million inhabitants of the vast market of an adjoining nation with ninety millions seemed an incontestable gain. The Conservatives did not spend much time in meeting these arguments. They found their strongest argument in an appeal to national sentiment and anti-American prejudice. They seized largely on the indiscreet words of Americans, and when they were not indiscreet they gave them a sinister interpretation. A remark of President Taft to the effect that Canada was now at the parting of the ways was quoted as implying that she ultimately would unite her fortunes with her neighbor's. They appealed to the fear of annexation, harping on it incessantly as likely to follow reciprocity. They played on the latent distrust of the United States as an unscrupulous bargainer. Many Canadians believed their country was overreached in the various boundary disputes and resented the disregard shown toward Canada by the United States in the McKinley and Dingley tariffs. The inconsiderate speeches of American politicians and the boastfulness and spread-eagleism of American tourists, combined with the memory of real or fancied national grievances and a small nation's natural jealousy of a large one, produced a state of mind among the people at large that was highly susceptible to these Conservative appeals. Moreover, the beneficiaries of protection were active in Canada as they have always been in the United States against any step in the direction of free trade. Manufacturers represented that shops would close and workmen be thrown out of employment if reciprocity were adopted. Although reciprocity did not apply to manufactures, with the exception of a few farm implements, manufacturers were generally to be found on the side of the Opposition. They feared the extension of the principle from free foods to free manufactures.

Early in the campaign the Conservatives had announced their programme, which included, aside from the rejection of reciprocity, thorough reorganization of the method of expenditures, the granting to the prairie provinces of their natural resources, the construction and operation of the Hudson Bay Railway by an independent commission, the establishment of a permanent tariff commission, the extension of civil service reform, and other features, but as the campaign went on the question of reciprocity soon dwarfed all other issues. Apart from merely local questions there was only one other issue that appeared at all conspicuously in the campaign. This was the question of naval policy, which was brought into prominence through the Nationalist party, founded and led by Mr. Henri Bourassa. This party had vigorously attacked the Laurier Navy act as a dangerous sacrifice of Canadian autonomy to imperial domination. Though the Na-



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FIELD MARSHALL H. R. H. THE DUKE OF CONNAUGHT
Governor-General and Commander-in-Chief



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HONORABLE ROBERT L. BORDEN, K. C.
Premier and President of the Privy Council

CANADA

tionalists were at odds on this point with the Conservatives, who, while criticising the methods and spirit of the Navy act, favored the principle of local Canadian navy, they joined the Conservatives in seeking the overthrow of the present government. On the reciprocity issue Mr. Bourassa and his party seemed at first somewhat undecided, but later developed an opposition to it. In general, the Nationalists and Conservatives coöperated for the overthrow of the Liberals. The result of the election was a complete victory for the Conservatives, the membership of the Liberals in the House of Commons being reduced to 80, and that of the Conservatives increased to 126, while the Nationalists won eight seats in the province of Quebec. Thus the Conservatives and Nationalists obtained a majority of fifty-four over the Liberals. The figures showing the state of the parties before and after the general election are as follows:

Before the election:

	Liberal	Conservative	Nationalist
Ontario	35	51	..
Quebec	52	12	1
New Brunswick	11	2	..
Nova Scotia	12	6	..
Prince Edward Island	3	1	..
Manitoba	2	8	..
British Columbia	2	5	..
Saskatchewan	9	1	..
Alberta	4	3	..
Yukon	1	0	..
Total	131	89	1

After the general election:

	Liberal	Conservative	Nationalist
Ontario	13	72	..
Quebec	38	18	8
New Brunswick	7	6	..
Nova Scotia	7	10	..
Prince Edward Island	2	2	..
Manitoba .....	..	9	..
British Columbia .....	..	5	..
Saskatchewan	7	3	..
Alberta	6	1	..
Yukon .....	..	..	..
Total	80	126	8

The result was a great surprise and disappointment in the United States. It was due chiefly to the strong national suspicions aroused in regard to the tendency of the agreement to take Canada out of the path of her national destiny. The rural population remained steadfast to their self-interest and to the Liberal party; it was nevertheless largely won over by the Conservative appeals and in almost all localities where protected manufacturing industries were established the vote was Conservative.

THE BORDEN MINISTRY. Early in October the Borden cabinet was announced, and on October 9 it held an informal meeting at the premier's residence and later took the oath of office at the Government House. It was generally conceded that the cabinet was a strong one and represented adequately the views of the chief elements in the Opposition. Only one minister in it had ever held a federal office before. The Nationalists were represented in the cabinet by Mr. Monk, minister of public works, Mr. Pelletier, postmaster-general, and Mr. Nantel, minister of inland revenue, who, however, had been lifelong Conservatives and, while inclined towards Nationalism, were not hostile to the naval programme. Nevertheless the new govern-

ment's concessions to the Nationalists were severely criticised in certain quarters.

Soon after the formation of the cabinet, Mr. Bourassa, the leader of the Nationalists, announced in a public speech the policy of his party. He said they would hold themselves entirely independent and support the government only in such cases as deserved support. Their demand was that a plebiscite be held on the question of the navy. The people should be asked whether they wished to maintain their strict autonomy as loyal Canadians and whether they favored direct contributions to the imperial navy or wished to build a navy in Canada which would be Canadian in time of peace and British in time of war. Whichever decision they might adopt would be loyally accepted by the Nationalists.

The Twelfth Parliament of Canada was opened on November 16. The Duke of Connaught's speech, after referring to the negotiations for improved trade arrangements with the British West Indies, announced that the policy of the government would be to promote agriculture and that to this end a measure would be submitted to Parliament. The introduction of a bill to establish a permanent tariff commission was also promised. In November Mr. Borden announced that the government would not go on with the naval policy until the people had been consulted. The government did not approve, he said, of the late ministry's proposal for the expenditure of £2,000,000 in ten years for the construction of a fleet which would be obsolete by the time it was completed. The whole question would, therefore, be reconsidered. The new government pledged itself to a plan for naval defense which should be drawn up with the advice of the admiralty. It was understood from the past speeches of Mr. Borden and other Conservatives that they demanded a powerful and effective fleet. But the measure was to be submitted to the people before it passed into law. The submitting of the naval plan to an electorate was not the exclusive demand of the Nationalist party, but had been proposed by Mr. Borden long before, and it was favored by many Conservatives.

OTHER FEATURES OF THE YEAR. The population of Canada in 1901 was 5,371,315. In 1911, according to the preliminary returns of the decennial census, published in October, it was 7,081,860, and of this increase 1,705,375 was set down to immigration. Early in the year immigration was clearly on the increase and if that rate continued it would bring the annual total to 450,000, as compared with 320,000 in 1910. The immigration of negroes into the region north of Edmonton occasioned much discussion and it was suggested that the government should restrict this class of immigrants by refusing them homesteads or by imposing a head tax upon them as in the case of the Chinese. In January the Federal Railway Commission rendered a judgment which declared all express companies doing business in Canada to be over-capitalized and requiring them to submit new tariffs within three months. A serious strike of coal miners occurred in April in the coal regions of Alberta and eastern British Columbia for the purpose of limiting their employment to union labor. (See ARBITRATION AND CONCILIATION, INDUSTRIAL.) Riots occurred on April 7, and forty of the leaders were arrested. For an account of the Imperial Conference, see

GREAT BRITAIN, paragraphs on *History*. To a certain class of Canadian imperialists the conference was disappointing. These believed in commercial union and in a system of trade preferences as the best means of securing imperial unity. They wished a common fleet under a common command. They distrusted the aggressive assertion of Canadian autonomy and had always viewed Sir Wilfrid Laurier with suspicion. The latter's attitude toward questions raised at the conference was not satisfactory to this element, but on the whole was approved by the country. At the end of June the retirement of Lord Strathcona from the high commissionership was announced. Under the fisheries treaty of 1908 with the United States, regulations for the fisheries in international waters were drawn up by a committee and in 1910 Canada passed the necessary legislation for carrying them into effect, but the United States Senate in 1911 failed to take corresponding action, insisting on modifications that were not acceptable to Canada, who in September announced her intention of withdrawing the treaty. See **ROMAN CATHOLIC CHURCH**.

CANADIAN FOREST RESERVE ACT. See **FORESTRY**.

CANADIAN PACIFIC RAILWAY. See **CANADA**.

CANADIAN RECIPROCITY. See **CANADA** and **TARIFF**.

CANADIAN SURVEYS. See **EXPLORATION**.

CANAL RAYS. See **PHYSICS**.

CANALS. Naturally the most important work of the year 1911 was the construction of the Panama Canal, which is treated elsewhere in the **YEAR BOOK** under its own title. Nevertheless, there were other works of considerable magnitude in progress, in both the United States and Europe, of which the New York State Barge Canal was perhaps the most important.

NEW YORK BARGE CANAL. During the year 1911, important progress was made along the entire New York barge canal system, which comprises the Erie, Oswego, Champlain, and Cayuga-Seneca canals. The length of canal under contract December 31, 1911, was 423.8 miles, and the value of the work under contract at the same time, at contract price including the lands, was \$74,950,318. The amount of work done on the various contracts at the end of the year amounted to \$41,232,007, while the construction work for the year 1911 amounted to \$15,362,284.

The barge canal system on which work was under way in 1911 included the Erie branch with a length of 323.2 miles (excluding the Hudson and Niagara River termini), on which thirty-five locks were being constructed; the Oneida Lake division of nineteen miles, on which no improvement was needed, and various spurs to the Erie branch for harbors at Syracuse and Rochester, aggregating 10.26 miles; the Champlain branch, 61.5 miles in length, including eleven locks; the Oswego branch, 22.0 miles long and requiring seven locks; the Cayuga and Seneca branch, with spurs at the head of the lakes having an approximate length of 27.3 miles are requiring four locks. The canal was being designed for boats of 3000 tons if the full widths of the locks were utilized, or where it was desired to have two boats pass in the most restricted channels and driven tandem to be lifted

at one lockage boats with a capacity of about 1600 tons could be used.

The width of channel in the barge canal varies with the conditions of construction. Where the excavation is not heavy, a minimum width of seventy-five feet at the bottom prevails, while the water surface has a width of 123 to 171 feet. In rock sections the bottom has a minimum width of ninety-four feet, while on river line the bottom generally is about 200 feet in width. The channel for both land line and minimum river line is twelve feet in depth. The locks are 328 feet in length between gates, making an available length of 310 feet. The width of the diameter in each lock is forty-five feet.

A number of portions of the new canal, in particular some new locks, were so nearly completed that the new channels could be used during the season of 1911. An interesting case of this kind was at Oswego, where the canal enters Lake Ontario. Here the first siphon lock to be built in the United States was constructed, and also the largest lock on the siphon principle ever built. This lock instead of having vertical gates to regulate the flow through culverts in the side wall by which the locks are filled, and emptied, has a curved culvert which forms a neck above the top of the wall of the lock. The flow of water in this neck is regulated by exhausting the air and admitting the water on the well-known principle of a siphon, and a tank is built in the wall and connects by pipes with the upper end and by an air pipe with the top of the siphon. This tank is filled with water, and by regulating its flow a vacuum is produced which forces the flow of the water through the culvert. The whole arrangement is simple and economical in maintenance, obviating steel work under water. Two siphon locks were being designed for the Cayuga and Seneca canal.

The siphon lock was first used in Germany in 1896, and the siphon principle has found application in several different forms of construction for regulating the flow of water in canals. Among these is the siphon spillway, several of which have been designed for the barge canal to carry off the surplus water accumulating in the canal under various conditions.

On the lower Mohawk River between Schenectady and Little Falls, movable dams of the bridge type, also the first to be built in the United States, have been constructed to regulate the flow of water. These consist of masonry piers carrying a steel bridge superstructure from which were suspended steel beams in pairs, carrying gates of heavy steel plate which could be slid on rollers upon the upright beams.

In connection with the barge canal, two large reservoirs, known respectively as the Delta and Hinckley reservoirs, were being constructed. The former was designed for impounding the waters of the upper Mohawk River about five miles north of Rome, and is formed by a dam 100 feet in height extending across a river gorge 600 feet wide at its base. The crest is 1000 feet in length at the top and forms a reservoir some four miles in length and two miles in width, with a capacity of 2,750,000,000 cubic feet. The area of flow at crest height is four and one-third square miles, while the drainage area is 137 square miles. The Hinckley reservoir was also designed to supply water for this portion of the barge canal, and has a capacity of 3,445,000,000 cubic feet with an area of flow at crest

height of 4.46 square miles. The drainage area is 372 square miles.

CAPE COD CANAL. During the year 1911, work on the Cape Cod canal, connecting Buzzard's Bay with Massachusetts Bay at Barnstable, progressed satisfactorily. The excavation for the canal was nearly half completed, and the break-water at Barnstable was substantially finished. In addition to the excavation across the mainland, considerable dredging for the approaches was being done, and for this work the contractors at the end of the year were building two new very large dredges. It was expected that the work would be completed and the canal in operation during the summer of 1913.

INTERNAL WATERWAYS IN THE UNITED STATES. Various projects for internal waterways in the United States have been under consideration during the year, and the discussion as to their economy and usefulness has been continued vigorously. A canal from Lake Erie to Pittsburgh was again brought into public notice during the year, and it was proposed to divide its estimated cost of \$50,000,000 among the States of Ohio, Pennsylvania, and West Virginia, which would be benefited by such a work. The control of the canal would be vested in a joint commission. There were also discussed various projects for waterways along the Atlantic coast, connecting the various bays, sounds, and rivers. For example, a committee appointed by the State of Massachusetts reported on the proposition to build a canal from Narragansett Bay to Massachusetts Bay, at an estimated expense of \$40,000,000, to save the trip around Cape Cod, and to reduce the distance further than by the Cape Cod canal. The report of this committee, submitted on May 1, 1911, was adverse to the proposition.

MANCHESTER SHIP CANAL. The Manchester ship canal reported that the year's business was the best ever enjoyed by the company and was carried on in 1911 with a substantial profit, so that a payment of £71,511 was made to the city of Manchester in the first half year. In this time there was an increase in daily paying of merchandise of £190,000 over the corresponding period of 1910, making the total amount passing through the canal some two and one-half million tons. At East Ham a lay-by 1450 feet long was constructed with a depth of twenty-eight feet of water alongside.

IMPROVING THE PARIS-ROUEN CANAL. The success of the Manchester Ship Canal led to the further consideration of the project for enlarging the locks and deepening the canal between Rouen and Paris, and thus making a seaport of Paris. This scheme was brought up in connection with the Paris floods, and a commission was considering the provision of works to prevent further flooding, which would also facilitate traffic. The commission expressed the opinion that by using more suitable boats the water-borne traffic could be adequately improved.

AMSTERDAM CANAL. It was recommended by a special commission that the lock at Tjuiden at the entrance to the Amsterdam canal should be increased to a length of 1180 feet and a width of 148 feet, with a depth over the sill of 46 feet. This would afford a greater length of lock than at the Kaiser Wilhelm canal or at the Panama canal. With it would probably go the deepening of the under harbor to 40 feet, and of the canal itself to 44 feet. This canal is of importance, as half of the vessels trading

with Holland pass through it, and between 1870 and 1911 the shipping returns showed an increase of 700 per cent.

LIÈGE CANAL. A scheme for the construction of a canal from Liège to Hasselt, with the object of diverting to Antwerp the water-borne traffic which was being carried to Rotterdam via Maestricht, was under consideration during the year. The new canal was proposed to start at Lixhe on the existing canal from Liège to Maestricht, and would traverse the hills separating the Meuse and Geer rivers by means of a tunnel 1300 meters long. It would then follow the Geer River as far as Hasselt, where connection would be made with the existing canals to Antwerp. The scheme involves the construction of fourteen locks and two lifts for the barges; and its distance, 44.5 kilometers, is such that the journey could be made in three days as against twelve to fifteen days by the existing canal systems. The new canal would be entirely under Belgian control, and would obviate the necessity of water-borne goods being transported to Holland at all, on their way from Liège to Antwerp.

BLACK SEA TO BALTIC CANAL. In Russia there was a movement to connect the Black Sea and the Baltic with a canal fourteen feet in depth at an estimated cost of \$150,000,000. For this purpose some 300 miles of the bed of the West Dvina, and 1000 miles of the bed of the Dnieper would be utilized.

CANAL ZONE, ISTHMIAN. See PANAMA CANAL.

CANARY ISLANDS. A group of islands belonging to Spain and lying off the northwestern coast of Africa. They constitute a Spanish province and have an area of 2808 square miles and a population (estimated, 1908) of 403,908. The seat of government is Santa Cruz (Teneriffe); leading town, Las Palmas. A new cable is open via Monrovia (Liberia) to Pernambuco (Brazil). Governor (1911), A. Eulate.

CANCER. Since the cultivation of cancer cells in artificial media has become possible, many interesting observations have been made as to the vital processes of these cells. Lambert and Hanes studied the methods by which it is thought cancer cells migrate from one part of the body to another, thus setting up metastases. They studied pieces of freshly implanted mouse sarcomata in mouse plasma and observed that individual cells separated themselves from the original mass and passed into the plasma by amoeboid movements. Pseudopods were thrown out on all sides of the cells in the characteristic fashion of the amoeba, but more slowly. When a preparation showing active amoeboid movement was taken from the warm chamber and examined microscopically at the ordinary room temperature, the majority of the cells retracted their pseudopods and became spherical. This phenomenon of amoeboid migration in cancer cells offers a reasonable explanation of the spread of malignant tumors in the body tissues, especially the invasion of the lymph spaces, lymph vessels, blood vessels, and serous cavities.

An enormous amount of laboratory work was done in 1911 in the general direction of the study of immunity and in the endeavor to develop curative and protective serums. Experimentally, it is now possible to produce a species of immunity to inoculation; that is, an animal can be so immunized that a malignant growth transplanted into its tissues will not flourish.

To some extent such a serum will inhibit the development of a cancer when it is injected soon after the beginning of the disease, but it cannot be said that any material progress has been achieved toward the cure of the human cancer by immunizing serums.

Probably the most important statistical investigation occupying a space of eight years, is that done under the Imperial Cancer Research Fund of Great Britain. The conclusions of the latest (fourth) report, as well as other investigations of a like nature, seem to establish certain fundamental truths concerning the biology of cancer and also to upset many preconceived theories; the parasitic theory, for example, has been practically abandoned. It is regarded as significant that cancers occur in all vertebrate animals and are not peculiar to the human race. Not only common domestic animals die from cancer, but even the cold-blooded animals suffer the same fate. Typical malignant growths have been described in birds, reptiles, frogs, turtles, salamanders, eels, and especially in fish. The one-time common theory that cancer occurred in carnivora, but not in herbivora—a theory which was eagerly seized upon and freely used by the vegetarians—is shown to be a fallacy. Not only is it shown that cancer is a disease of mature life and that carnivora live to a good age by killing the herbivora in their non-cancerous youth, but abundant observation has demonstrated that herbivora may also become cancerous, if they escape the carnivora until late enough in life to render them liable to malignant disease. Another popular fallacy that cancer is a disease of civilization and domestication from which wild animals did not suffer, has also been demolished, since it has been found that free wild animals are likewise subject to the development of malignant tumors. This wide zoological distribution, including all races of men and all animals, even marine fish, proves that cancer is not a recent acquirement, such as might be attributed to the influence of civilization. So perishes another cherished theory. One fact all statisticians agree upon, and that is that cancer is increasing among the children of men. It is estimated that one of every 1200 of the population of the United States dies of cancer every year and that at the present time there are 225,000 cases. Statistics from Germany, Great Britain, and France all show a material increase in those countries. See EPILEPSY.

The year 1911 was marked by no definite advance toward the solution of the cancer problem, with regard to either etiology or treatment. No demonstrable theory of the cause of cancer has been presented. In the matter of treatment much serious work has been done in the research laboratories of Europe and America, the major part of this being along the line of biochemical experimentation. Favorable results from the use of various cancer extracts and sera have been published during the year, but it is safe to say that surgery remains the only established means of dealing with malignant disease in the majority of cases. Nothing distinctively new has been brought forth in the surgical treatment of cancer, effort being largely directed toward the perfection of technic, the adaptation and amplification of methods already known. A notable example of this may be found in the work of Dr. William Seaman Bainbridge of New York on "Arterial Ligation in Irremov-

able Cancer of the Pelvic Organs" (*Woman's Medical Journal*, April, 1911).

In electrotherapy, as applied to cancer, the most notable results in operable cases have been obtained by means of "fulguration," first advocated and employed by De Keating-Hart of Paris, and now being used in a number of European hospitals, and by Bainbridge at the New York Skin and Cancer Hospital. This method calls for (1) the thorough surgical removal of all macroscopic cancer, and (2) the application to the field of operation—the soil upon which the cancer has been growing—of a long electric spark of high frequency and high tension. By the constant motion of the electrode and by means of a current of cold air passing through the electrode upon the tissue being fulgurated, the burning of the tissues is prevented. The method is not to be confounded, therefore, with the application to the tumor itself of desiccating short sparks. For inoperable cases De Keating-Hart has recently begun to employ "thermo-radio-therapy," a method of applying X-rays after heating the deeper tissues to be irradiated and cooling the external surface. Special methods are devised for accomplishing this purpose. Tissues thus heated are supposed to become more radio-sensitive. This method has not been employed over a period sufficiently long to warrant definite conclusions as to its value.

Wasserman's recent chemotherapeutic experiments upon mice have received favorable comment, but their ultimate value cannot be foretold at present. Interesting résumé will be found in "The Campaign against Cancer: Educational, Experimental, and Clinical" (illustrated), by Bainbridge, in *American Journal of Dermatology*, Vol. XV., No. 7, 1911.

CANNON. See MILITARY PROGRESS.

CAPE COD CANAL. See CANALS.

CAPE TO CAIRO RAILWAY. See RAILWAYS, AFRICAN.

CAPE OF GOOD HOPE, THE. A province (since May 31, 1910) of the Union of South Africa (q. v.). Provincial capital, Cape Town.

AREA, POPULATION, ETC. Area, 276,995 sq. miles; population (1904), 2,409,804 (whites, 579,741). These figures include the colony (206,860 square miles, 1,480,691 inhabitants) and the native territories of East Griqualand (7594 and 222,685); Tembuland (4117 and 231,472). Transkei (2552 and 177,730), Walfish Bay (430 and 997), Pondoland (3918 and 202,757), and Bechuanaland (51,524 and 84,472). Population (census May 7, 1911), 2,563,024. Number of marriages in 1909, 9427; births, 56,318; deaths, 34,186. Cape Town had (1911) 67,170 inhabitants (with suburbs, 149,461); Kimberley, 29,519; Port Elizabeth, 30,676; East London, 21,277. Immigration (1909), 17,440 adult males, 8535 adult females, and 4470 children; emigration, 17,871 adult males, 7403 adult females, and 4423 children. Education is free, but compulsory only for children of European extraction. Aided schools, June 30, 1909, 3681; enrollment, 172,225. College students (1908-9), 842.

INDUSTRIES. In 1909 the net area alienated was 1,220,054 acres; total area disposed of to December 31, 1909, 136,386,332 acres, leaving unalienated 40,990,328 acres. The area under principal products and the yield in 1909 were as follows: Wheat, 335,294 acres, 2,345,223 bushels; oats, 331,766 and 2,395,401; barley 63,165 and 660,336; vines, 21,552 and 3,494,656 (gallons). Livestock (1909): 1,954,390 cattle,

419,963 horses and mules; (1909) 18,807,168 sheep, 8,275,120 goats, 500,000 ostriches. The mines produced in 1909 diamonds (Kimberley) to the value of £5,098,622; coal, £65,972 (76,846 tons); copper, £426,925; tin, £2445; gold, £556.

COMMERCE, FINANCE, ETC. The statistics given below are for the special trade for calendar years and inclusive of specie; those for finance, for fiscal years ending June 30:

	1907	1908	1909
Imports	£15,586,792	£13,739,878	£14,216,317
Exports	44,405,450	42,011,582	46,244,590
Revenue	7,701,192	6,981,873	7,312,112
Expenditure	8,349,316	7,973,727	7,681,305
Debt	51,235,343	53,145,880	48,306,491

Total imports (1909), £17,789,201; total exports, £46,577,006. Exclusive of specie, Great Britain supplied imports and received exports valued at £8,999,045 and £44,286,937 respectively; the British possessions, £4,522,757 and £115,326; other countries, £3,889,029 and £2,095,165. The principal imports were textiles and articles of apparel, £4,966,113; provisions, etc., £3,923,397. The chief exports of colonial produce were raw gold (originating almost entirely in the Transvaal and Rhodesia, but not included in the imports), £32,159,603; diamonds, £6,370,301; wool, £2,820,716; ostrich plumes, £2,191,207; hides and skins, £860,595; angora hair, £909,070; copper ore, £430,892; grain and meal, £360,727; wine, £9229. Tonnage entered (1909), 1,861,373 (1,459,166 British); cleared, 1,800,000 (1,530,909). In the coastwise trade, 4,871,932 tons entered, and 4,848,928 cleared. Registered shipping, January 1, 1910: 47 steamers, of 4423 tons; 6 sailing vessels, of 1389.

Railway mileage, December 31, 1919: 3329 state, 486 owned by private companies; besides 485 miles in the Bechuanaland Protectorate, etc., privately owned, but worked by the government. Telegraph lines (government), 8272; wires, 31,892; offices, 589. Telephone wires, 5847 miles. Post offices, 1087. In postal savings banks, £2,044,542.

The administrator (1911, N. F. de Waal), is aided by a provincial council and an executive committee.

CAPE VERDE ISLANDS. A group of fourteen islands about 350 miles west of Cape Verde, constituting a Portuguese colony. Capital, Praia. Area, 1457 sq. miles; population (1909), 147,424 (3856 whites). Coffee, medicinal plants, sugar, millet, indigo, and tobacco are raised. Imports and exports (1909), 1,909,634 milreis (1 milreis = \$1.08) and 235,894 milreis respectively. Vessels entered and cleared 1888, of 4,566,000 tons, exclusive of coasting trade. Estimated revenue and expenditure for 1910-11, 448,393 and 428,533 milreis respectively. Governor (1911), vacant.

CAR CONSTRUCTION. See RAILWAYS.

CAREY ACT. See IRRIGATION.

CARLETON, WILLIAM. See LITERATURE, ENGLISH AND AMERICAN, Fiction.

CARNEGIE, ANDREW. See GIFTS AND REQUESTS.

CARNEGIE FOUNDATION. See UNIVERSITIES AND COLLEGES.

CARNEGIE INSTITUTION OF WASHINGTON. This institution carries on its research through ten departments. These are the departments of botanical research, experi-

mental evolution, economics and sociology, historical research, the geophysical laboratory, department of marine biology, department of meridian astrometry, nutrition laboratory, solar observatory, and department of terrestrial magnetism. Investigations are also carried on by a board of research associates. The work of these departments will be described in detail below.

The most important event in the history of the institution during 1911 was the receipt of an additional gift of \$10,000,000 from Mr. Carnegie. This sum is to be added to the endowment of the institution.

DEPARTMENT OF BOTANICAL RESEARCH. This department carried on many important investigations during the year. Among these were studies of the evaporation, the increasing salinity, and the changes of vegetation following close upon the receding shores of the Salton Sea; of the influences of temperature, rainfall, sunlight, soil-moisture, etc., on plant organisms; of the effects following transplantation from low to high altitudes and from arid to humid localities; of the variations in water and acid content of plants; of the chemical effects induced in plant tissue by light and heat; and of the physiological functions of leaves in plant life. Dr. Ellsworth Huntington, research associate of the department, carried on an interesting series of investigations in the southwest desert area of the United States, devoting the chief part of his work to the secular variations of climate in recent geological times. Another noteworthy investigation was undertaken by Prof. H. M. Richards, who studied the respiration of cacti.

DEPARTMENT OF EXPERIMENTAL EVOLUTION. In this department the work of the year included investigation of heredity in plants, birds, insects, animals, and man. Dr. Woodward collaborated with Dr. David F. Weeks of the New Jersey State Village of Epileptics and secured a large amount of accurate statistical data bearing directly on this disorder. The results promise much important information relating to eugenics. Dr. Shull continued investigations begun formerly on the effects of self-fertilization of maize or Indian corn. Observational and experimental work was carried on along many other lines. The total number of zoological individuals under the study of the department exceeded 2000, while the range of plants observed included nearly 500 specimens and upwards of 40,000 individuals.

DEPARTMENT OF ECONOMICS AND SOCIOLOGY. The work of this department included chiefly the completion of researches already undertaken, and considerable progress was made in perfecting the results of investigations.

DEPARTMENT OF HISTORICAL RESEARCH. The members of the department were engaged during the year in searching the archives of Great Britain, France, Spain, and Mexico, as well as those of the United States for all accessible data, and these are being rapidly put into form for publication in convenient manuals. Three works were published during the year: *Guide to the Materials for American History in Roman and Other Italian Archives*; *Inventory of Unpublished Material for American Religious History in Protestant Church Archives and Other Repositories*; and *Calendar of Papers in Washington Archives Relating to the Territories of*

the United States. There were in the press at the end of the year, *Guide to the Manuscript Material Relating to American History in the German State Archives*, and *Guide to Materials for the History of the United States in the Principal Archives of Mexico*. The department has issued ten manuals, which have been greatly in demand by professors and historians both in Europe and America.

GEOPHYSICAL LABORATORY. The work of this department is toward the solution of that large and difficult group of chemical and physical problems presented by the materials of the earth's crust. Twenty-six papers were issued by members of the staff of the laboratory during 1911. Among these are contributions to general physics and a noteworthy paper on "The Constitution of Portland Cement." An interesting field of work has been preliminary studies of an active volcano carried on in the laboratory.

DEPARTMENT OF MARINE BIOLOGY. During the year the construction of a new vessel for the work of the department was begun. This boat has been named the *Anton Dohrn* in honor of the founder of the Stazione Zoologica, director for many years of the Marine Laboratory of Naples. During the year twenty-one papers were issued by members of this department. One of the most important of these relates to the rôle of certain bacteria in depriving surface sea-water of nutrition, and another records definite progress of the quantitative determinations of the growth of corals and coral reefs.

DEPARTMENT OF MERIDIAN ASTROMETRY. The meridian determinations of stellar positions at the temporary observatory at San Luis, Argentina, undertaken by this department in 1910 were finished in January, 1911. The deductions of the stellar positions and motions are proceeding in the computing section of the department at the Dudley Observatory, and the final catalogue giving precise positions of all stars up to the seventh magnitude, inclusive, will appear in due time.

NUTRITION LABORATORY. The staff of this laboratory were occupied during the year in the construction of new apparatus, in the improvement of apparatus already in use, and in numerous researches on pathological and normal subjects, and in the preparation and publication of reports on results already attained. Nine publications were issued. One of these gives the result of the important study of the variation of temperature in different parts of the human body. Another records experiments on men to determine the effects of breathing air rich in oxygen content.

SOLAR OBSERVATORY. Although the construction and equipment of the laboratory are still incomplete, members of the staff made progress during the year with their programmes of solar, stellar, and physical observations and of computation and deduction. The observatory is now equipped with four highly effective telescopes. Attempts to obtain a perfect disk for the 100-inch Hooker telescope have so far failed, but the manufacturers at St. Gobain, France, are now attempting to fit a disk hitherto unacceptable. See **ASTRONOMY**.

DEPARTMENT OF TERRESTRIAL MAGNETISM. The magnetic survey of the globe undertaken by this department proceeded effectively during the year on both land and sea. Observations of the magnetic elements of declination, dip, and intensity were made at numerous points on the continents

of Asia, Africa, Australia, Europe, South America, and in the Polynesian islands. The non-magnetic ship *Carnegie* secured during the year a large quantity of data of practical utility to navigation and of still greater importance in their relations to the general problem of terrestrial physics. The *Carnegie* during the year visited the ports of Rio de Janeiro, Montevideo, Buenos Ayres, and Cape Town, arriving at Colombo, Ceylon, June 11, 1911. This marked the completion of the first year out. As a result of the work of the *Carnegie* large errors were found almost everywhere except in the South Atlantic Ocean in the best compass sailing charts now in use.

RESEARCH ASSOCIATES. Between fifty and sixty research associates of the institution carried on investigations during the year. Two remarkable publications resulted from these investigations. One of these was a treatise on *Dynamic Meteorology and Hydrography*, by Prof. V. Bjerknes of the University of Christiania. The other is entitled *The Polynesian Wanderings*, by William Churchill.

Twenty-nine publications were issued by the institution during the year. The president is Dr. Robert S. Woodward.

CARNEGIE PEACE ENDOWMENT. See **ARBITRATION**.

CARNEGIE TECHNICAL SCHOOLS. A group of schools founded in Pittsburgh, Pa., in 1905 by Andrew Carnegie, with the object of placing a technical education of the most approved type within the reach of any youth who had the desire for such an education and lacked the money. To accomplish this, fees were set at a nominal figure and a liberal endowment was provided for the maintenance of the institution. The founder's original gift was \$1,000,000, but the demand for instruction has been such as to make frequent extensions necessary, and Mr. Carnegie has, in consequence, increased his benefactions from time to time until they now amount to \$4,000,000 for buildings and equipment and \$7,000,000 for endowment. The schools were first opened in 1905 with 753 students enrolled. The registration for 1910-11 was 2228, of which 1752 were men and 474 women. The faculty numbered 150 members and the productive funds amounted to about \$7,000,000, with an income of \$448,000. In 1910 Mr. Carnegie made further gifts of \$3,500,000 and a farm of 750 acres near Pittsburgh for use as an engineering camp. The schools included courses in engineering, and art and industrial instruction is given to both day and night classes. There are also courses for the education and training of women for the home and for the various professions and industries open to them. New courses in commercial engineering, illustration and painting, training for industrial teachers, and institutional management for women were established in 1910-11. The college grounds, covering thirty-two acres, are located in Schenley Park, a distance of about three miles from the business district of Pittsburgh. Several new buildings were in process of construction at the close of 1911.

CARNEGIE PRIZE. See **PAINTING**.

CAROLINE ISLANDS. A German possession (part of the German New Guinea Protectorate), made up of the Caroline, Pelew, and Marianne (Ladrone) islands (Guam excepted), all lying north of New Guinea. Area, about



THE ADMINISTRATION BUILDING OF THE CARNEGIE INSTITUTION OF WASHINGTON
WASHINGTON, D. C.

600 square miles. Estimated population, 55,000. Imports and exports (1909), 2,185,217 and 651,898 marks respectively. Estimated revenue and expenditure (1911), 703,000 marks (government subvention, 144,000). Administration (under the governor of German New Guinea) at Ponapé, the eastern capital (1911), Dr. Kersting; at Yap, the western, M. Baumert.

A native insurrection led to a German punitive expedition, and a naval brigade attacked a fortified post in Ponapé, held by the insurgents. The insurgents were driven out, but a lieutenant and a seaman were killed and three other seamen wounded. Later, however, several of the ringleaders surrendered, and by February 22 the punitive expedition, according to the press dispatches, was completely successful, having resulted in the capture of the entire tribe that had committed the outrages. Those who were found guilty of murder were shot, and the rest, numbering some four hundred, were banished to the island of Yap.

CARRERE, JOHN MERVIN. An American architect, died from injuries received in an automobile accident on March 1, 1911. He was born of American parents in Rio de Janeiro, Brazil, in 1858, and was educated in Switzerland, and studied architecture in the École des Beaux Arts in Paris, graduating in 1882. Returning to the United States he became a partner with Thomas Hastings in the firm Carrère and Hastings in 1884. This firm designed some of the most notable buildings in the United States, including the Ponce de Leon and Alcazar hotels in St. Augustine, Fla., the New York Public Library, National Academy of Design, and many other important buildings in New York City and elsewhere.

CARBOLL, JOHN LEE. An American public official, formerly governor of Maryland, died February 27, 1911. He was born at Homewood, near Baltimore, in 1830, the great-grandson of Charles Carroll of Carrollton. He was educated at Georgetown University and after studying law at the Harvard Law School was admitted to the bar in 1851. He was a member of the Maryland senate in 1867-71 and was elected governor of the State in 1876, serving until 1880. He was president-general of the National Society of the Sons of the Revolution.

CARTER, THOMAS HENRY. Former United States senator from Montana, died September 17, 1911. He was born in Scioto county, O., in 1854, and was educated in the common schools. In his youth he engaged in farming and in rail-roading, and for several years taught school. In 1882 he removed to Montana. He was a delegate to the Fifty-first Congress from the Montana Territory, 1889-1891, and upon the admission of the Territory to statehood he was elected the first representative to the same Congress. He was commissioner of the United States General Land Office in 1891-2. From 1892 to 1896 he was chairman of the Republican State committee. He was elected United States senator in 1895 for the term ending in 1901. He was defeated for reelection, but in 1905 was for the second time elected senator, serving until 1911. On the expiration of his term he was appointed a member of the United States commission to adjust the dispute in regard to the boundary waters between the United States and Canada. Senator Carter was for many years the strongest individual factor in Republican

politics in Montana. Had a Republican legislature been elected in 1910 he would undoubtedly have been its choice for senator. In spite of the Democratic majority he came very near to election by the aid of Democratic votes. Senator Carter was frequently mentioned as a possible cabinet officer. His most striking performance in Congress was the talking to death in a sixteen-hour speech at the close of the session a river and harbor bill, carrying appropriations aggregating \$50,000,000. This occurred on the night of March 3, 1901. President McKinley desired the bill killed. Senator Carter's term expired the following day at noon. He took the floor sixteen hours before adjournment and spoke continuously until Congress expired and the bill failed. Senator Carter was known in the Senate for the distinction of his English in debate.

CATALOGUES, LIBRARY. See LIBRARY ASSOCIATION, AMERICAN.

CATHOLIC CHURCH. See ROMAN CATHOLIC CHURCH.

CATHOLIC UNIVERSITY OF AMERICA. An institution of higher learning under the auspices of the Catholic Church, at Washington, D. C., founded in 1869. The students in 1910-11 numbered about four hundred. The faculty numbered fifty-four. Two notable appointments to the faculty were Dr. Franz Cohn of the University of Bonn, professor of the Old Testament, and Dr. Paul Gleis of the University of Münster, professor of the German language and literature. During the year about \$100,000 in scholarship and benefactions were received by the university. The invested funds amount to about \$1,250,000. An engineering building was constructed for the departments of civil, mechanical, and electrical engineering. Two new departments, architecture and drawing, have been added to the school of sciences. On October 12 the cornerstone of the Gibbons Memorial Hall was laid. This will be a residence hall for lay students, to cost \$250,000. A new review was added to the university publications, the *Catholic Educational Review*. While the university is open to lay students in all sciences, except medicine, it is also a centre of studies for several important Catholic religious orders and associations, the Dominicans, Franciscans, Paulists, Mariists, Holy Cross order, Sulpicians, etc. The library contains 70,000 volumes. The rector is the Rev. T. J. Shahan, D. D.

CATSKILL AQUEDUCT. See AQUEDUCTS.

CATTLE CENSUS. See AGRICULTURE.

CATTLE - RAISING. See STOCK - RAISING.

CATTLE, TUBERCULOSIS FROM. See TUBERCULOSIS.

CAUCASUS. See RUSSIA.

CAVALRY. See MILITARY PROGRESS.

CAWDOR, FREDERICK ARCHIBALD VAUGHAN CAMPBELL, Earl of. An English nobleman and public official, died February 8, 1911. He was born in 1847, the eldest son of the second Earl of Cawdor. He was educated at Eton and at Christ Church College, Oxford. From 1874 to 1875 he was a Conservative member of Parliament for Carnarvonshire. In 1892 he was defeated for Parliament and again in 1898. In the following year he succeeded to the title

on the death of his father. The first fifteen years of Lord Cawdor's active life was occupied with railway work. He was for several years chairman of the board of directors of the Great Western Railway. Under his direction many important changes were made in the management of this railway. In 1905 he succeeded Lord Selborne as first lord of the admiralty. He assumed office at a critical time in the modern history of the British navy. It was at the time of great changes which had been begun by Lord Selborne. These related to the organization, distribution, and equipment of the fleet. Lord Cawdor strongly supported the prosecution of these changes. In November, 1905, a few days before the resignation of Mr. Balfour as prime minister, Lord Cawdor issued a memorandum of "Admiralty Policy" which enunciated a ship-building policy in the following words: "At the present time, strategic requirements necessitate an output of four large armored ships annually." The issuing of this memorandum was his last public act as first lord of the admiralty, but he continued to hold a large place in naval discussions in the succeeding ministries. Upon the coming into power of the Liberal party, he took a prominent part in the debates of the House as a member of the Opposition, and exercised considerable influence in Unionist councils. He was closely associated with the movement among Opposition peers in favor of a reformed House of Lords. In 1910 he was chosen as one of the four Unionist leaders who took part in the conference on the Constitutional Question and he had an important share in the drafting of Lord Lansdowne's resolutions for the reform of the House of Lords.

CAYENNE. See FRENCH GUIANA.

CAYMAN ISLANDS. Three British West Indian islands (Grand Cayman, about 93 square miles; in 1909 5500 inhabitants; capital, Georgetown, with 2000 inhabitants; Little Cayman, 4½ square miles, 98 inhabitants; Cayman Brac, 15½ square miles, 900 inhabitants), administratively attached to Jamaica, but governed locally by a commissioner. The census of June, 1911, showed a total population of 5564 (2322 white, 2211 colored, 1031 black); Georgetown 1449. Coconuts, turtle shell, and hides are exported. Imports (1906-7), £28,000; exports, £16,000. Revenue (1909-10), £2979; expenditure, £3460; reserve fund, £2200. Commissioner (1911), George S. S. Hirst.

CELL. See BOTANY and BIOLOGY.

CELLON. See CHEMISTRY, INDUSTRIAL.

CELTIC PHILOLOGY. See PHILOLOGY, MODERN.

CELTUM. See CHEMISTRY.

CEMENT. The total production of cement in all varieties in 1910 was 77,785,141 barrels, valued at \$68,752,092. In 1909 the production was 66,689,715 barrels, valued at \$53,610,563, or an increase in 1910 of 11,095,426 barrels, or 16.6 per cent. in quantity, and of \$15,141,529, or 28.2 per cent. in value. The total production is divided as follows: Portland cement, 76,549,951 barrels; natural cement, 1,139,239; puzzolan cement, 95,951 barrels. Among the States producing cement, Pennsylvania ranks first. In 1910 there were produced in that State 26,675,978 barrels, valued at \$19,551,268. In this State there were in 1910 twenty-five plants producing cement. Indiana ranked second, with 7,219,199 barrels; Kansas third, with 5,665,808 barrels, and California and Washing-

ton, 6,385,588 barrels. Other States producing between three and four million barrels were Illinois, Missouri, New Jersey, Michigan, and New York. The total number of plants producing cement in the United States in 1910 was 111, as compared with 108 in 1909.

Trade conditions in cement in 1910 were slightly better than in 1909, but prices were still far from satisfactory, especially in the Eastern States. The price per barrel in 1910 ranged from 72.7 cents in the Lehigh districts to \$1.38 on the Pacific Coast. There was more or less fluctuation in price during the year, the highest level being reached during the building season. The imports of foreign cement in 1910 amounted to 306,863 barrels. Nearly all of this was Portland cement. Exports amounted to 2,475,957 barrels, valued at \$3,477,987. The apparent consumption of Portland cement in 1910 in the United States was 74,380,857 barrels as compared with 64,378,397 barrels in 1909.

The production of Portland cement in Canada is coming to be an important industry. During 1910 there were produced 4,396,282 barrels. The average price per barrel was \$1.34. The import of Portland cement into Canada in 1910 was 349,310 barrels.

The cement industry in the United States during 1911 suffered from low prices and from a lack of coöperation among producers. In fact, it was stated that many of the smaller mills at the end of the year were in poor financial condition, as it was impossible to produce cement at 60 cents per barrel of 375 pounds, a low record-price that ruled for a portion of the year. Rumors of consolidations and combinations were circulated, but these were not universally credited, in view of the attitude of the United States government towards industrial combinations.

The low prices for cement, however, continued to stimulate the natural growth of the use of this product for construction, particularly in the Western cities of the United States, and even in the East there has been considerable growth in the use of concrete for structural purposes.

About 1,000,000 barrels annually of cement were being supplied to the Panama Canal under contract at about 68 cents per barrel, and this demand somewhat improved the business conditions in the industry. The production in 1911 considerably exceeded that of 1910, which amounted to 77,785,141 barrels, while at the same time the imports from abroad were declining so that in the fiscal year ending June 30, 1911, the imports amounted to 46,648 tons, as compared with 81,550 tons in 1910 and 96,187 tons in 1909. The largest imports come to the United States from Germany and Belgium.

During the year the amount of cement manufactured from blast-furnace slag showed the usual increase. In 1900 32,000 barrels were manufactured from this source, while in 1910 this had increased to over 7,000,000 barrels, equivalent to over 1,000,000 gross tons. In other words, this waste product of the blast-furnace was supplying some 10 per cent. of the total production of the United States.

During 1911 a joint committee to develop uniform specifications for cement held some important sessions. These conferences were participated in by a committee of the American Society of Civil Engineers, members of the

United States government departmental committee and members of the similar committee of the American Society for Testing Materials. These various committees came to an agreement on a uniform test in all respects except in regard to the test for preliminary set and for consistency. For this particular test the departmental committee, and particularly the delegates from the board of engineering, United States army, would not accept the Vicat needle test which is now incorporated in the American Society of Civil Engineers' tests and which the committee from that society insisted upon retaining. The various committees were not able to come to an agreement upon the subject, so that a uniform specification for cement-testing had not been achieved.

"CEMENT GUN." During the year considerable progress was made with an effective method of applying concrete without the use of forms. The new method was known as the "Cement Gun," and consists of two steel hoppers, from the bottom of which dry cement and sand or other materials are ejected by compressed air through a hose pipe. This hose terminates in a nozzle, to which another and smaller hose supplies water also under pressure. While the material is in motion the hydration of the cement takes place, and a mixture with the aggregate is shot upon the surface to be coated. The mortar shoots from the inside in the form of spray and at high velocity so that the coarser grains of sand at first rebound from the surface, and a thin film of fine cement mortar attaches itself. This serves as a plastic basis for the larger particles which become embedded in it. The mixture can be applied so that a coating of any desired thickness can be formed upon the film. The discharge of sand and cement can be regulated, and the machinery is driven by an air motor supplied from an ordinary compressed air supply. The claim is made in this new process that the hydration takes place preceding and immediately before a direct emplacement, so that it is held in the initial set, or crystallization on the surface to be protected, and not on the mixing board. The process has been applied during the year on the reconstruction of the Grand Central terminal yards, and in the lining of the inverted pipe siphons of the Catskill aqueduct a 2-inch covering of cement mortar was deposited. Also, on the Panama Canal the cement gun was found useful in protecting the decomposed rocks with a coating of cement, and thus preventing slides. This protection took the place of costly concrete rivetment on the famous Culebra Cut, and it was reported that most satisfactory results had been attained.

CENSUS, THIRTEENTH. See UNITED STATES CENSUS.

CENTENARIES. See EXPOSITIONS.

CENTRAL AMERICA. See articles on the various countries.

CENTRAL BANK. See BANKS AND BANKING.

CEPHALONIA. See ARCHEOLOGY.

CERIUM. See CHEMISTRY.

CERIUM MAGNESIUM ALLOY. See CHEMISTRY.

CEYLON. An island in the Indian Ocean; a British crown colony. Capital, Colombo.

AREA, POPULATION, ETC. Area, 25,332 square miles. Population 1901, 3,565,964; 1911, 4,109,-

470. Birth-rate (1909), 36.7; death-rate, 30.3 per 1000. Immigrant laborers (1909), 80,718. Colombo had (1901), 158,228 inhabitants; Galle, 37,316; Jaffra, 33,879. Schools (1909), 4072, with 302,638 pupils; government expenditure, £96,117. Buddhists (1901), 2,141,599; Hindus, 828,622; Mohammedans, 248,140; Christians, 362,018. The Buddhism of Ceylon differs materially in doctrine and practice from that of Tibet, China, and Japan.

PRODUCTION, COMMERCE, ETC. Area under cultivation (1908), 2,773,657 acres; pasture, 662,152. Area (1909) under rice, 678,194 acres; other grains, 104,554; tea, 535,691; coffee, 1769; cocoanuts, 1,035,863; rubber, 154,460; cinchona, 263; cinnamon, etc., 47,906; cacao, 36,324; tobacco, 15,108. Total quantity of rubber sold in 1908, 7808 hundredweight; in 1909, 13,621. Livestock (1909): 1,509,554 cattle, 96,335 sheep, 170,645 goats, 4042 horses, 97,148 swine. Plumbago mines in 1908, 648 (export, 516,316 hundredweight; 643,853 hundredweight in 1909); gem quarries, 3303. Gold, monazite, thorium, and mica occur. The pearl fisheries are leased to a company at a rental of Rs. 310,000 per annum. Revenue from salt sales (a government monopoly) in 1909, Rs. 1,520,648. Imports (1909), Rs. 133,782,127 (from Great Britain, 28,794,975); exports, Rs. 147,019,740 (to Great Britain, 83,202,405). Railways open (end of 1909), 576½ miles. The Madawachi-Manar branch in the northwest of the Island of Ceylon was the most important of the four lines under construction during 1911, as it was destined to become part of the future connection with India. The Ragama-Negombo branch in the west was being extended to Chilau, while the main line in the centre of the plateau was being extended about forty miles to Passara, and the southern line was being constructed to Ratuapura. Length of telegraph wires, 4292 miles; of telephone wires, 1200; post offices, 419.

FINANCE AND GOVERNMENT. The unit of value is the rupee (worth 33.44 cents). Revenue and expenditure (1909), Rs. 39,352,861 and Rs. 35,790,398. Public debt, £4,989,392 and Rs. 3,096,085.

The colony is administered by a governor (1911, Sir Henry McCallum), aided by executive and legislative councils.

The MALDIVÉ ISLANDS (seventeen coral islets), lying 500 miles west of Ceylon (population 30,000 Mohammedans), are tributary to the Ceylon government. They are governed by a hereditary sultan residing in the island of Mali.

CHADBORN, CHARLES L. An American inventor, died May 11, 1911. He was born in Newburg, N. Y., in 1834. He learned the carpenter's trade in that city, then removed to Albany as superintendent of the wood-working branch of a reaper and mower company. After several years he became associated in a concern that was making an English patent lawn-mower, at Fishkill, N. Y. In a short time he invented a light lawn-mower much improved over the English make and offered it to his employer, who decided not to take it up on the ground that it was too light and would never become popular. He succeeded in interesting several persons with small capital in the manufacture of the lawn-mower, but his health failed and he was compelled to abandon it. The business afterwards became a notable success

and the mowers were sold in all parts of the world.

CHAILLÉ, STANFORD EMERSON. An American physician and educator, died May 27, 1911. He was born in Natchez, Miss., in 1830 and graduated from Harvard College in 1851. He studied medicine and graduated from the University of Louisiana, now Tulane University, in 1853. In the three years following he studied medicine in Europe. From 1862 until 1865 he was surgeon and medical inspector in the Confederate army of Tennessee. From 1858 to 1868 of physiology, pathology, anatomy, and University and from 1868 to 1908 was professor of physiology, pathology, anatomy and hygiene in that institution. From 1908 to the time of his death he was professor emeritus. He was the author of *Origin and Progress of Medical Jurisprudence*. He was a member of many foreign and American medical societies.

CHAMBERLAIN, ABIRAM. An American public official, former governor of Connecticut, died May 15, 1911. He was born at Colebrook, Conn., in 1837, and was educated at Wiliston Seminary. He engaged in the banking business in 1863 and was president of several important commercial institutions in Connecticut. In 1877 he was a member of the Connecticut House of Representatives. In 1901-2 he was State comptroller and from 1902-1905 was governor of the State.

CHAMBERLAIN, HENRY RICHARDSON. An American newspaper correspondent, died February 15, 1911. He was born in Peoria, Ill., in 1859. He was educated in the public schools of that city. At the age of sixteen he went to work in a chemical laboratory in Philadelphia, but soon tired of this and began writing for newspapers. After a few years of miscellaneous newspaper work in Boston, he was appointed Boston correspondent to the *New York Sun*. In 1888 he became managing editor of the *New York Press*, but after a year resigned and spent some time in Europe. Following this he returned to the *Sun* and remained until 1891. In that year he became managing editor of the *Boston Journal*. In the following year he was made correspondent of the *Sun* in London, in which place he had general oversight of the *Sun's* news service in Europe. He acquired a remarkable knowledge of political matters in Europe and he reported many notable events, among them the disturbances in Macedonia, the particulars of the Panama Canal scandal, the political crisis in Russia in 1906, the Messina earthquake, the jubilee of Queen Victoria, and the coronation of King Edward VII. He published a novel entitled *Six Thousand Tons of Gold*.

CHAMBER MUSIC. See MUSIC.

CHAMBERS, ROBERT W. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

CHAMPAGNE. See LIQUORS.

CHAMPAGNE RIOTS. See FRANCE.

CHAMPLAIN CANAL. See CANALS.

CHARCOT, JEAN. See POLAR RESEARCH.

CHARITIES AND CORRECTIONS. NATIONAL CONFERENCE OF. See CHARITY.

CHARITY. One of the most conspicuous features of modern social development is the great increase in the number and strength of movements for the benefit of the less fortunate members of society. So broad is this humanitarian movement that the very nature of charity is changing. The modern charitable and phil-

anthropic societies and associations do not, by any means, limit their activities to the relief of the poverty-stricken. This is clearly shown in the brief summaries of the various conferences which were held during 1911. Altogether there have been established annual conferences of charities and corrections in nearly two-thirds of the States. At these are discussed not only local problems, but also general principles and the larger bearings of social betterment movements. A Canadian conference has also been organized.

NATIONAL CONFERENCE OF CHARITIES AND CORRECTIONS. The thirty-eighth annual session of this conference was held at Boston June 7-14, in connection with a considerable number of other charitable and philanthropic societies. It was the largest assembly in the history of the conference, being attended by 1632 registered delegates, besides several hundred others. These delegates came from forty-six States and Territories, and from Hawaii, Japan, and China. The conference was divided into sections on the following subjects: Children; families and neighborhoods; law-breakers; standards of living and labor; housing, health, and recreation; drunkenness; the church and social work; and securing and training social workers.

The completeness of treatment in each of these sectional conferences may be indicated by the topics discussed in the first section devoted to children: Tendencies in the care of destitute and neglected children; sex hygiene; family desertion; social problems of rural children; medical inspection of school children; psychological clinics. So much interest was aroused over the subject of sex hygiene that it was decided to devote an entire section to that subject in the 1912 conference.

The next annual meeting of the national conference will be held at Cleveland, in the spring or early summer of 1912. The president is Julian W. Mack, Washington, D. C.; general secretary, Alexander Johnson, Fort Wayne, Ind. Committees have been organized for that conference on the following subjects: Public supervision and administration; children; families and neighborhoods; courts and prisons; standards of living and labor; housing and recreation; immigration; relation of medical and social work; sex hygiene.

OTHER BOSTON CONFERENCES. Almost simultaneously with the foregoing conference there met in Boston the following: The eighth annual session of the National Conference on the Education of Dependent, Backward, Truant and Delinquent Children, June 5-6; the National Conference of the Society of St. Vincent De Paul, June 4-7; National Conference of Jewish Charities; National Probation Officers' Association, June 6-13; Federated Boys' Clubs; the customary meeting of the Red Cross; the second annual meeting of the National Federation of Remedial Loan Associations, June 12-14; the National Association of Societies for Organizing Charity (see below); the National Conference of Settlements; the Conference of Public Relief Officials, June 7-13. Each one of these minor conferences comprised a considerable number of intensive studies, or authoritative reports on some topic of the modern philanthropic movement.

CHARITY ORGANIZATION. At the National Conference of Charities and Corrections at Boston was held the first annual session of The

National Association of Societies for Organizing Charity. This association had been temporarily organized at St. Louis in 1910, the organization being made permanent at Boston, with fifty-eight charter members. The form of organization is patterned after that of the International Committee of the Young Men's Christian Association. The plan contemplates two secretaries and a budget of \$10,000 for the first year; there is some expectation that the number of secretaries will be increased to four the second year, to eight the third year, to twelve the fourth year, and twenty the fifth year, and that the budget will similarly increase to \$100,000. The object is to organize an associated charities, or a charity organization society in every city of 10,000 or more population. The actual work of carrying on the organization propaganda will be divided between this new national association and the charity organization department of the Russell Sage Foundation.

The essential principles of organized charity, as stated by Dr. Edward T. Devine, editor of the *Survey*, are: Pains-taking inquiry so that action may be based upon knowledge; coöperation on the basis of knowledge; adequate, appropriate, persistent, and efficient action in individual cases, with a view to the removal of fundamental causes of dependency in so far as these are personal; concerted action upon the social causes of exploitation and misfortune, such as unsanitary housing, child labor, extortionate charges by pawn shops, social loan and chattel mortgage agencies, and uncompensated industrial injuries.

NEW YORK STATE CONFERENCE. The twelfth New York State Conference of Charities was held at Watertown, October 17-19. There were five principal subjects considered: Child labor, public health, housing, public institutions, and children. Very extensive discussion was given to the subject of public outdoor relief. It was proposed by one of the speakers to restore this form of relief in New York City, where it has not been used for more than thirty years. It was argued that private outdoor relief is inadequate, and that such relief is a proper function of the government. Robert W. Hebbard argued that private relief societies should have public funds placed at their disposal. This position was opposed by Mr. Frederic Almy of Buffalo, and Mr. Edward T. Devine of New York. Their objections were that the subsidizing of private charities leads to sectarian demands, lobbying, and log rolling for the public stipends. Throughout the conference there was a conspicuous and insistent demand for increased activities on the part of the State with reference to child labor, vagrancy, housing, and the care of defectives and delinquents. Speaking on the care and relief of the poor in their homes, Anna B. Pratt of Elmira stated that three countries in Europe have succeeded in eliminating the tramp, primarily by the use of compulsory and free labor colonies as in Switzerland. She stated that there were 500,000 tramps in the United States. A special plea was made for the assumption by the State of responsibility for vocational guidance and vocational education. It was argued that, in the interest of the industrial population, the public school system should be divided, after the elementary school, into three great divisions: High schools, business schools, and indus-

trial, agricultural, and home-making schools. The importance of sex education was emphasized by a number of speakers, and a programme for such education by mothers was set forth. With reference to the care of defective delinquents, it was pointed out that they do not properly belong in a reformatory institution for normal boys, and that they may not be transferred to custodial asylums, with the result that they are usually returned to their home communities where they again fall back into crime.

NEW YORK CITY CONFERENCE. In May was held a three days' New York City Conference of Charities and Correction. The president, Cyrus L. Sulzberger, declared that poverty still multiplies in spite of the extensive preventive activities of a quarter century; he declared the chief causes to be unemployment, industrial accident, disease, premature death, and low wages. William H. Allen declared that the city, having worked out a five years' plan for meeting the social needs of the city, is working more efficiently for municipal uplift than private philanthropy. Similarly, Comptroller Prendergast declared his belief that the city would become the greatest social worker, and also that social betterment expenditures were sound investments for public funds. Similarly, Mr. Benjamin C. Marsh argued for a considerable extension of the city activities in the care of the destitute and the unfortunate. He pointed out needed philanthropic activities which neither public nor private charity now carries on. One of the most striking contributions to the conference was the discussion of the quality of hospital workers. It was brought out that their present rate of pay ranges from \$5 to \$15 a month; that, in order to fill one thousand positions, some six thousand names must be entered on the pay roll each year, as a result of frequent dismissals for drunkenness. It was brought out that the present system has evolved from an early system of enforced work by prisoners. Demand for higher wages, as the only means of getting higher grade workers, was insistent. The committee on families summed up the obstacles to wholesome homes as congestion, low wages, intemperance, and lack of an enjoyable and stimulating social life. A plea for the municipal outdoor relief for widows and for deserted families was made. Considerable discussion was devoted to the folly of the present system of boarding children in homes other than their own, instead of subsidizing their own mothers. Several speakers urged the standardization of the treatment of children, either in general or in separate clinics. Maud E. Minor presented an authoritative treatment of the vexed question of women delinquents. She pointed out that neither fine nor workhouse avails against prostitution. She urged the organization of educational work, particularly upon farms, as a means of reconstituting such women. She also developed the need for a house of detention for women awaiting trial, the conviction of procurers, and the prevention of female delinquency by raising wages and the moral conditions of shops.

SOCIAL CENTRES. The first National Conference on civics and social centre development in America was held at Madison, Wis., October 25-28. This was organized by the Social Centre Association of America, and the extension division of the University of Wisconsin,

and was attended by nearly two hundred delegates. The civic, social, and educational sides of civic centres were discussed from numerous viewpoints. It was decided to hold a second conference at the University of Kansas in the fall of 1912. The officers elected were: President, Dr. Josiah Strong, New York City; secretary, Edward J. Ward, Madison, Wis.

SECOND ANNUAL CONFERENCE OF RURAL SOCIAL WORKERS. The Second Annual Conference of Rural Social Workers was held at Amherst, Mass., in August. Sections were devoted to the country clergyman; civic betterment; town administration; grange work; rural libraries; home makers and household administration; agricultural education; and the county Y. M. C. A. workers.

NEGRO AGENCIES. One of the advances in the organization of social betterment work among the negroes of America was the organization of the National League on Urban Conditions among Negroes, in October. This resulted from the combination of the Committee for Improving the Industrial Conditions of Negroes in New York, the National League for the Protection of Colored Women, and the Committee on Urban Conditions among Negroes. The objects of the league were stated as follows: To carry on constructive and social work among negroes; for improving their social and economic conditions in urban centres; to bring about coordination and coöperation among existing agencies working in the interests of negroes, and to develop other agencies where necessary; to secure and train negro social workers; to make such studies in cities as may be required for the carrying out of the objects of the league. Prof. E. R. A. Seligman was made chairman, Edward E. Pratt, secretary, and A. S. Frissell, treasurer. Branches were at once organized in Memphis, Baltimore, St. Louis, Nashville, and Louisville.

KANSAS CITY BOARD OF PUBLIC WELFARE. One of the most interesting features of the recent developments in charities and philanthropy is the increased activity of city departments devoted especially to such work. The charities department of New York City has greatly enlarged its plans and raised the level of its efficiency. The city of Milwaukee, also, has taken long steps in the direction of a broad social programme. But no city has as yet organized as comprehensive and thoroughgoing a plan as that formed in Kansas City. Its board of public welfare is divided into ten divisions: District superintendents; social service department; department for the homeless unemployed; welfare loan agency; municipal farm; women's reformatory; parole department; recreation department; legal aid bureau; research bureau. Among the principles which have guided the organization of this new venture were the following: Emphasis on justice rather than charity; prevention rather than cure; accurate knowledge preceding and accompanying all efforts to improve social conditions; coördination of all existing agencies, both public and private; no public outdoor relief except where the bread winner is a prisoner and the family in actual destitution. Although this is a municipal venture, use is made of a number of institutions already operating in the city.

SCHOOLS. The great interest in systematic charitable work which has developed so conspicuously in the last decade, has resulted in

the formation of a half dozen schools devoted to the training of social workers. The first of these, the New School of Philanthropy, was organized in 1898; then came the Chicago School of Civics and Philanthropy, in 1903, followed in 1904 by the Boston School for Social Workers, and in 1907 by the St. Louis School of Social Economy. Finally, late in 1910, were organized the Institute of Municipal and Social Service in Milwaukee, and the Philadelphia Training School for Social Workers. The first four of these schools are assisted by the Russell Sage Foundation. The Milwaukee Institute resulted from the combined action of a local committee, and the Extension Division of the University of Wisconsin. There was organized in 1911, the American Interchurch College, for religious and social workers, at Nashville, Tenn. This resulted from the effort to establish in the South a well-equipped, undenominational institute for the training of social and religious workers. Its board of directors is composed of representatives of several Protestant denominations. It is hoped that denominational schools will be established in connection with this college, making use of the latter's class rooms, auditorium, and gymnasium, as well as its courses in sociology, psychology, languages, music, manual arts, and housing economy. It is the first federated school in the United States for the preparation of church workers, social settlement workers, and directors of reformatories and associated charities. The college will have both white and colored departments.

INTERNATIONAL ASSOCIATIONS. The International Congress on Hygiene and Demography will meet in Washington, September 23-28, 1912. Its object is to extend and improve the knowledge and practice of hygiene, public health, and vital statistics. Its eight sessions will be devoted to hygiene of infancy, of childhood, and of the school; industrial and occupational hygiene; the control of infectious diseases; State and municipal hygiene; hygiene of traffic and transportation: military, naval, and tropical hygiene. The president of the congress is Dr. Henry P. Walcott of the Massachusetts Board of Health; the general secretary, John S. Fulton, of Baltimore.

The international committee of the Congresses of Public and Private Relief, at a session in Paris, July 3, fixed upon London and the year 1915 as the place and time for the next session. Topics for discussion will be: International arrangements for regulating relief given to children who are indigent or neglected; the relation of provident methods to relief; the relief of families of extradited prisoners.

The fifth Annual Congress of Public and Private Relief of France met at Nantes, July 3-8. The subjects considered included the relations of charitable relief to the new old-age pension system; the protection of children against moral corruption; district nursing; and the relief of families in times of public calamity.

CHARITY ORGANIZATION. See CHARITY.

CHARLES LOUIS MOUNTAIN RANGE, THE. See EXPLORATION.

CHARLESTON. See SOUTH CAROLINA.

CHARLOTTENBURG (Germany). See MUNICIPAL GOVERNMENT.

CHARTER REFORM. See MUNICIPAL GOVERNMENT.

CHARTS, ERRORS IN. See CAENEGIE INSTITUTION.

CHATHAM ISLANDS. A dependency of New Zealand (q. v.).

CHAUTAUQUA INSTITUTION. A system for the advancement of popular education, founded at Chautauqua, N. Y., in 1874, by John H. Vincent and Lewis Miller. In addition to the C. L. S. C. reading work, which is done at the homes of readers all over the English-speaking world, the summer activities of the institution are carried on by means of a general assembly, meeting for sixty days in July and August, and the series of summer schools. Admissions to the assembly grounds in 1911 aggregated over 51,000, and the estimated number of residents from about July 15 to August 15 was in the neighborhood of 13,500. During these sixty days an average of six major events—devotional hours, lecture series, special addresses, readings, recitals, concerts, illustrated lectures, entertainments, and annual events—were presented, and during these same days an average of twenty minor conferences, club meetings, etc., took place daily. The Chautauqua summer schools include the classes in English, modern and classical languages, psychology and pedagogy, mathematics and the laboratory sciences, religious teaching, library training, domestic science, music, expression, arts and crafts, physical education, and business training, and enrolled slightly under 3200 students, who were taking instruction from a faculty of about one hundred members, drawn from the leading universities, colleges, and normal schools of the country. The season as a whole was marked by a slightly larger attendance than any of the preceding thirty-seven, and justified the present plans for extension of the work in all departments, but for 1912 especially in the school of music, school of religious teaching, school of pedagogy, and the school of practical agriculture.

CHAWNER, WILLIAM. An English educator, master of Emmanuel College, Cambridge, died March 29, 1911. He was born in 1828 and was educated at Emmanuel College. He was vice-chancellor of that college from 1899 to 1901 and was master from 1895 until the time of his death.

CHEESE. See DAIRYING.

CHEMICAL SOCIETIES. See CHEMISTRY, INDUSTRIAL.

CHEMICAL SOCIETY, AMERICAN. See CHEMISTRY, INDUSTRIAL.

CHEMISTRY. The volume of published work in the various fields of chemistry has been larger in 1911 than in any previous year. Most of this material may be likened to mere sentences, or at most paragraphs, in great chapters of chemical research. Far-reaching generalizations, like important discoveries, are seldom made, and then often fail of recognition till many years have passed. Unless seen in perspective, it is difficult to determine what will really prove of importance; the first paper on the Röntgen ray seemed of little significance, yet led to a revolution in fundamental conceptions of chemistry. In this article a few only of the many advances in the science can be touched on. One of these, Werner's discovery of inorganic stereo-isomerism, is a notable step in the chemical history of 1911.

ATOMIC WEIGHTS. A rather large amount of work has been done in the past year on the more exact redetermination of these physical constants, but only six changes have been made in the annual table issued by the International Commission on Atomic Weights. The most important of these is that of mercury, for which the number 200 has for ten years been used. Easley has analysed mercuric chlorid electrolytically by the use of a mercury kathode and obtained the figure 200.63, confirming earlier work of his, and later this result was again confirmed by his analysis of mercuric bromid. On the strength of this work the international commission has adopted 200.6 for the atomic weight of mercury. For iron, 55.84 is chosen in the place of 55.85, based on the work of Baxter on ferrous bromid. One of Baxter's series of determinations was carried out on iron obtained from the "Campas" meteorite, which fell in Mexico in 1903. The results found were the same as when he used ordinary iron, thus showing no difference between the metal from celestial and that from terrestrial sources. Work by Richards on calcium chlorid and calcium bromid has led to the figure 40.07 in the place of 40.09 for calcium. By conversion of tantalum pentachlorid into the oxid, Balke found the atomic weight of tantalum to be 181.52, which the commission rounds off into 181.5, in the place of the former 181, but later work by Chapin and Edgar F. Smith points to a figure higher by several tenths of a unit. McAdam has obtained the ratio between sodium metavanadate and sodium chlorid by heating the former in dry hydrogen chlorid, and from this computes the atomic weight of vanadium as 50.967. The commission has adopted the number fifty-one, instead of 51.06, as used in 1911. It is to be noted that all of the above work on atomic weights has been done in American laboratories, and published in the *American Journal of Chemistry*. By most careful purification, Hofmann has prepared erbium which appears to be homogeneous, both from gravimetric and from spectroscopic standpoints, and this neo-erbium, as he calls it, has an atomic weight of 167.68; therefore the commission has taken 167.7 as the figure to be used for erbium, in the place of 167.4. In the table for use in 1912, *niton*, symbol Nt, for the first time appears as an element. This is the name suggested by Ramsay and Gray for the emanation given off by radium. The density of this emanation was measured in 1910, by viscosity methods, by Debiere, and from this its atomic weight was 220. Although the amount of niton at the disposal of Ramsay and Gray was only a few cubic millimeters, yet they made five determinations of its atomic weight by actually weighing it on their marvelously sensitive micro-balance. The values obtained were in quite close agreement and averaged 223, though the number 222.4 is preferred by them. This is very close to the figure which was determined by Debiere by an entirely different method. The element niton is an inert gas, and is the highest member of the argon family. Numerous other atomic weight determinations have been made during the year, but in each case the number now in use has been confirmed.

NEW ELEMENTS. The search for new elements always possesses a certain fascination, but few searchers are rewarded by success. Most new elements, indeed, are discovered unexpectedly

and a large proportion of supposedly new elements turn out to be neither elements nor new. Unsuccessful attempts to decompose existing elements into constituents are, however, often very valuable in proving the homogeneity of the supposed complex. For example, Fisher and Froboese have recently purified argon by fractional crystallization, using liquid air as a cooling medium, and they find no sign of any other element being present. The atomic weight of the purified argon remains as before, 39.9, eight-tenths of a unit higher than that of potassium, while from its place in the periodic table it should be lower. The cause of this anomaly still remains to be explained. James, after 15,000 operations, has failed to detect by fractional crystallization any evidence of the complexity of thulium. Last year Flint set forth strong reasons for believing that he had decomposed tellurium into two elements, much to the satisfaction of chemists, who hoped that thus the anomalous atomic weight of this element would be explained, but later work by Harcourt and Baker fails to confirm the conclusions of Flint. Doubt has also been thrown on the existence of nipponium, a new element reported two years ago by Ogawa. On the other hand, Urbain announces the separation from the gadolinite earths of a new element, which he has named *celtium*, symbol Ct. Its oxid belongs to the already long list of "rare earths," and appears to be in its properties closely related to lutecium. The discovery of a new element of the platinum group has been reported from British Columbia, but this has not yet been confirmed.

ELEMENTS. Pure boron has been prepared, probably for the first time, by Weintraub, and its properties have been investigated. It proves to be nearly as hard as the diamond and it fuses only above 2000° Centigrade. Its most remarkable property is the increase of its electrical conductivity with the temperature. In the cold it is a very poor conductor, its specific resistance being 10^{12} times that of copper, while at 400° C. this resistance has decreased in the proportion of 12,000,000 to one. It is suggested that this property may give it important industrial applications. Pure cerium has also been prepared and its properties studied by Hirsch. The process used for the preparation was the electrolysis of the fused chlorid, rendered conducting by the presence of small quantities of alkali chlorids and fluorids. The metal was purified by forming an amalgam and then distilling off the mercury in a vacuum. Metallic cerium is rather soft, malleable, and very ductile. It has a specific gravity of 6.92 and melts at 635°C. No definite crystals of the metal could be obtained, but the interior of cerium ingots was highly crystalline. Its most marked chemical property is the ease with which it is attacked by reagents, most acids and many salts acting upon it, often vigorously, in the cold. Heated in the air it takes fire at 160°C. Many of its alloys were studied by Hirsch, but the only ones possessing particular interest at present are those with iron and with magnesium. The pyrophoric character of the cerium-iron alloy has been known for some time and has of late been widely used in cigarette-lighters. The alloy used is not homogeneous, and its peculiar property seems to be due to the scratching off of minute particles of the cerium present, which are by the friction heated high

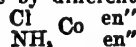
enough to ignite. The cerium-magnesium alloy is also highly pyrophoric and very brittle. As it is also endothermic it would seem to promise valuable applications in thermal reductions. Now that tungsten and molybdenum have been prepared in coherent form these metals in wrought condition are revealing many valuable properties. It has been found possible to draw tungsten wire down to 0.0008 inch in diameter and these wires are finding great application as filaments in incandescent lamps. The very high fusing point of both these metals gives them valuable applications for electric-resistance heating. The melting point of tungsten is more than a thousand degrees above that of platinum, and at the same time it is much cheaper, so that it may be expected to replace the latter metal for many electrical purposes. Owing further to its high specific gravity and heat conductivity and the fact that at high temperatures it vaporizes least of all the metals, it is particularly valuable as target in the X-ray tube. Should it become cheap enough it would prove an ideal material for projectiles. A curious property of metallic thorium is described by Werner von Bolton, who found that small animals, like the amphioxus, can live much longer in water to which metallic thorium has been added, than in its absence. On the other hand, the metal appears to be injurious to vegetable life, so that possibilities are here suggested of destroying bacterial growths on animal life without harm to the animal. In the last Baker lecture before the Royal Society, Strutt described a new chemically active form of nitrogen, formed when pure nitrogen is submitted to the action of the electric spark. This modification is characterized by a luminescence which persists for a short time after the discharge has ceased. Unlike ordinary nitrogen, which is very inert, this form is very active, and unites directly with many elements, such as mercury, phosphorus, and iodine. The compound which it forms in its union with mercury is explosive. These two forms of nitrogen remind us of the two forms of phosphorus, the element which stands closest to nitrogen in the periodic table. Red phosphorus is inert, while yellow phosphorus is chemically very active. The same is true of oxygen, for in its ordinary form and when pure it is at ordinary temperatures inert, while in the form of ozone it is active. The two forms of nitrogen may thus also be due to a different number of atoms in the molecules of the two forms, or, as is perhaps more probable, the active modification of nitrogen may be the element in atomic form.

COMPOUNDS. Among the multiplicity of new compounds which have been prepared the past year, two many be mentioned which were needed to fill gaps in the application of chemical theory. Carbon ditellurid, CT_2 , which corresponds to carbon disulphid and carbon diselenid, has been prepared by Stock. It is exceedingly unstable, gives a golden-yellow solution in carbon disulphid, and is characterized by an intolerably suffocating odor. This confirms the analogy between tellurium and sulphur, which has of late been called in question by some chemists. The other compound is a selenite of quadrivalent manganese, $\text{Mn}(\text{SeO}_3)_2$, prepared by Marino by the action of selenium dioxide on manganese dioxide. When sulphur dioxide acts on manganese dioxide instead of a sulphite of quadrivalent manganese, a dithionate of bivalent manganese is obtained.

This has the same empiric formula, and many suppose that the sulphite is actually first formed, but it has never been isolated. Marino's compound, however, shows all the properties both of a selenite and of quadrivalent manganese, and is the first salt to be prepared of quadrivalent manganese with an oxy-acid.

WERNER'S THEORY. The application of Werner's theory of the constitution of inorganic compounds has proved in recent years of great value in the investigation of the complex compounds of inorganic chemistry. With little question the most brilliant piece of work in the whole field of chemistry the past year is that of Werner himself in confirming experimentally the theoretical deductions to be drawn from his views regarding a possible inorganic stereo-isomerism. It is worth while to trace rapidly some salient points in the development of his theory. For many years Werner has been engaged in the study of the so-called "complex" compounds of inorganic chemistry, and especially of that class known as the metal-ammonia bases, compounds which contain a number of ammonia groups in the molecule. (For example: $\text{Co}(\text{NH}_3)_6\text{Cl}_2$). Chemists have attempted for several decades to account for the structure of these compounds by the theory of valence, but with little success. This tool, which proved so valuable in studying the compounds of organic chemistry, appeared worthless here. In 1893 Werner first suggested the idea that in these compounds the ammonia groups are arranged around the central metal atom, giving what he called a coördinated group, which acted as a unit, generally indeed as an ion, the valence of which depends upon that of the central atom. This idea was soon applied to a large number of other classes of compounds, in which other groups or atoms replaced the ammonia. Thus, from this standpoint, water of crystallization, which has always been a bugbear to the valence theory, is often merely a part of the coördinated group. So also the "double" salts, such as ferrocyanides, chloroplatinates, fluosilicates, and even the alums, may be accounted for by what has been called "Werner's theory," or sometimes "Werner's hypothesis." The number of groups or atoms thus coördinated around the central atom appears to be never greater than six, though in many compounds it is less. If there are six such groups and they are symmetrically arranged, we shall have the figure of an octahedron, with the metal atom in the centre and the coördinate groups at each of the six corners. This naturally carried us back in thought to the early days of the first application of structural chemistry to explain the compounds of carbon. That the atoms within the molecule have a definite arrangement was, from both theoretical and practical standpoints, the most fruitful idea introduced into chemistry since Dalton's first suggestion of the atom itself, and we see, at once following, the wonderful development of organic chemistry. The culmination of structural organic chemistry was the connection between optical activity and the asymmetrical carbon atom, that is, optical isomerism. Werner's theory, if well founded, should lead to a similar development of the structural chemistry of inorganic compounds, and such has proved to be the case. It has led to a search for isomers, that is, compounds which have the same atoms in the molecule, but differently ar-

ranged, and hence possessing different properties. In accordance with the theory, numerous predicted types of isomerism have been discovered. Three of these cases may be noted. The first is where an atom (or group), which is a part of the coördinated group, exchanges places with an atom outside this group. For example $[\text{ClNO}_2\text{Co}(\text{NH}_3)_5]\text{Br}$ and $[\text{BrNO}_2\text{Co}(\text{NH}_3)_5]\text{Cl}$. Many such cases are known. In a second case, when the central atom of a coördinated group is surrounded by two atoms (or groups) of one kind and four of another, if the octahedral arrangement represents the truth, it should make a difference in the compound whether the two similar atoms are at opposite or at contiguous corners of the octahedron. There should thus be two distinct compounds of the formula $[\text{Cl}_2\text{Co}(\text{NH}_3)_4]\text{Cl}$. One called *trans*-, in which the two chlorine atoms are on opposite sides of the cobalt atom, and the other *cis*-, with these two atoms on the same side. The fact that these two compounds do exist, for they have been known for half a century, has hitherto been impossible of satisfactory explanation. The third type of isomerism is that which was discovered by Werner during the year 1911. Practically all organic substances which are optically active in polarized light have an asymmetrical carbon atom, that is, a carbon atom to which are attached four different groups. These four groups may be arranged about the carbon atom in two ways, not alike, but each like the image of the other in a mirror, or like a right and a left glove. While such substances as are made in nature are generally optically active, those made in the chemical laboratory are generally inactive, because they contain equal numbers of each kind of molecule, those which are dextrorotatory, and those which are levorotatory. Pasteur showed that these inactive substances (called racemic) can often be split into their active constituents by combining them with other optically active compounds, as well as by other means. Now if four points of Werner's octahedron be occupied by two bivalent groups, and the other two corners by different atoms or groups, as for example



there will be two possible asymmetric arrangements, which will be mirror images of each other, and it would from the analogy of organic substances be expected that they would be optically active, one dextrorotatory and the other levorotatory. Werner accordingly prepared a considerable number of compounds of this type, some containing cobalt and others chromium as the central atom, and actually found it possible to split them by the method above mentioned into components which showed opposite and equal optical activity. In some respects this is even more remarkable than the work of Pasteur and van't Hoff, since they were hunting a theory to account for known facts, while Werner was experimenting to find facts which should support and confirm his theory.

Until recently Werner's theory has failed to give aid in elucidating the complex acids of molybdenum, tungsten, etc. Through the efforts of Miolati and especially of Rosenheim, these compounds, such as the familiar phosphomolybdates and phosphotungstates, give promise of yielding up their secrets. The phosphomolybdates, for example, appear to be derived from

a phosphoric acid, $H_3(PO_4)$, (here in the co-ordinated group, PO_4 , it is the phosphorus atom which has six oxygen atoms grouped around it) in which the oxygen is replaced by the bivalent group MoO_4 or Mo_2O_7 . An obstacle in the way of this view has been that phosphomolybdic acid is evidently tri-basic, while this theory would demand that it should be septi-basic, since there are seven replaceable hydrogen atoms. Miolati had already found by physico-chemical methods that free phosphomolybdic acid gave evidence of a higher basicity than three, and now Rosenheim has succeeded in preparing a guanidinium salt of this and similar acids, in which the acids are actually septi-basic, and all seven hydrogen atoms are replaced by guanidinium, yet the salts are neutral. This is a remarkable confirmation of the theory.

RADIO-ACTIVE ELEMENTS. The question whether niton (radium emanation) can be influenced in its rate of decomposition by physical or chemical forces has been again investigated by Rutherford, and his former negative results confirmed. The half value of its decomposition period is found under all conditions to be 3.846 days. This is in remarkable agreement with the figure obtained by Madame Curie, which was 3.85. Rutherford followed this decomposition for more than a hundred days, at the end of which time the activity had decreased to less than 0.00,000001 of its original value. Rutherford and Boltwood further determined with great accuracy the amount of helium formed from radium. This had been found by Dewar in one experiment to be 182 cubic millimeters per year from one gram of radium, while in another experiment he found 169 cm^3 . The theoretical amount, calculated from the number of alpha-particles given off, is 158 cm^3 . In one experiment Rutherford and Boltwood collected the helium given off from 192 mg radium in eighty-three days, and in their second experiment that from the same radium in one hundred thirty-two days. In each case they found the amount to be 156 cm^3 per year from one gram radium, an exceedingly close agreement with the amount theoretically required. The helium production from niton was also determined, and an effort made to measure that from a layer of polonium deposited on metallic copper. In this last case only one-fourth of the theoretical amount of helium was obtained, the largest portion being occluded in the copper, from which it could be removed only by heating to redness. From the experiments of Fajans it seems probable that *radium C* decomposes not only into *radium D*, with a half-period of decomposition of nineteen and one-half minutes, but also into another product, provisionally called *radium C₂*, which has a half-period of only one and one-half minutes. Fajans suggests that actinium may be a decomposition product of *radium C₂*. It seems probable from our present knowledge that in the decomposition of uranium, eight helium atoms are ultimately given off, and that the end product of this decomposition is lead, intermediate products being ionium, radium, niton, etc. Several years ago Boltwood found lead present in all uranium minerals, and its amount varied with the age of the mineral. Holmes has now investigated a large number of earlier rocks from this standpoint, and finds in Devonian and Silurian rocks, from 340 to 430 million years old, the lead-uranium ratio is from 0.041 to 0.053. In

thorianil from Ceylon, approximately 1640 million years old, the ratio is 0.200 that is, five times as great as in rocks only one-fifth as old. Pirret and Soddy have found in the pitchblende from Joachimsthal, the present great source of radium, the ratio of uranium to radium is 1 to 3.15×10^7 , exactly the theoretical value calculated by Mlle. Gleditsch. The influence of niton, or more accurately, the influence of the energy liberated by its decomposition, on chemical reactions is being studied by Lind. The only results thus far published are on the system, hydrogen-bromine-hydrogen bromide. The union of hydrogen and bromine in the gaseous state is somewhat accelerated by the presence of radium, which furnishes the niton, while the decomposition of hydrogen bromide seems to be uninfluenced. In liquid, anhydrous condition hydrogen bromide is decomposed slowly, and about 3.5 per cent. of the total energy of decomposition of niton is thus changed into chemical energy. Aqueous solutions of hydrogen bromide are rapidly decomposed by niton and the same is true of solutions of potassium bromide. The more concentrated the solutions the more rapid the decomposition, but this is not proportional to the concentration.

SOLUTIONS. The fact that solutions of electrolytes increase in conductivity with rise in temperature has long been recognized, but there has been little exact investigation as to the cause of this rise. The diminished viscosity of the solvent with the rise in temperature is undoubtedly an important factor in determining the large positive temperature coefficients of conductivity, but from studies of Jones and West it would seem that the decreasing mass of the ion with rise in temperature is a much more important factor. This decreasing mass of the ion is due, according to the solvate theory proposed by Jones, to the fact that the ion, which at low temperatures carries with it often a very considerable number of molecules of the solvent, can hold fewer of these molecules as the temperature rises. To determine this effect West and Jones have measured the conductivity of a large number of salts in aqueous solution, where the attached molecules of the solvate are water, at temperatures ranging from 35° to 65° C., temperatures at which comparatively few conductivity determinations have been made. According to the solvate theory, those ions with the greatest solvate-forming power should have the largest temperature coefficients of conductivity, since the more complex the solvate the greater the change in this complexity with the temperature, and the greater the change in the mass of the ion, the greater the change in its velocity with a constant driving force, and consequently the greater the change in conductivity with rise in temperature. Further, ions with equal solvate-forming power should have temperature coefficients of the same order of magnitude, though since some ions hold the solvent more firmly than others they would not be expected to have exactly equal temperature coefficients. And again, the greater the dilution the more complex the solvate formed about the ion, and the greater the change in complexity with the temperature. Hence temperature coefficients of conductivity should be greater the higher the dilution. All of these theoretical conclusions were abundantly confirmed by the conductivity measurements of West and Jones, and lend strong probability to the correctness of the

solvate theory. The fact that salts of strong bases or acids, that is, good electrolytes, do not obey the law of mass action in their ionization has long been a source of perplexity. From a study of salts which decompose into two or three ions it has appeared that the concentration of the un-ionized portion of the salt, instead of being proportional to that power of concentration of the ionized portion represented by the number of ions into which the salt is decomposed, as would be required by the law of mass action, is actually proportional to a power which is nearly constant in all cases, regardless of the number of ions. Thus, in a salt which decomposes into two ions, the exponent should be two, in one giving three ions, three, etc. Instead, this exponent with all salts thus far investigated has a value between 1.40 and 1.55. It was a matter of great interest to determine if this holds with salts which give a larger number of ions. This has been done by Noyes (A. A.) and Lombard. The tetrasodium and the penta-sodium salts of benzenepentacarboxylic acid, which can be obtained in a very pure condition and which show practically no hydrolysis in solution, were chosen for the investigation. It was found that here, where there are five and six ions present in the solution, the value of the exponent is 1.5, like that of salts giving two and three ions. Further it has been found that at any definite concentration the un-ionized portion of a salt is roughly proportional to the products of the valences of the ions of the salts, but this had been little investigated for salts giving more than three ions. Noyes and Lombard found in the two salts studied by them that the same rule is applicable. This work broadens very much the generalizations regarding the ionization of good electrolytes, and paves the way a good deal further than has previously been done toward a comprehensive theory. The same may be said to a greater or less degree of a large part of the work that is being done in physical chemistry today. The volume of the work is large, but the methods of physical chemistry have been used relatively few years, and the data thus far accumulated are not sufficient for the establishment of fundamental theories, great as the progress has been. It is but a few years since the atom was looked on as an indivisible, impenetrable, unchangeable mass, no atom of one kind having any relation to atoms of any other kind. Indeed, the very existence of the atom has been called in question. To-day the atom has been rehabilitated, and has become but a stepping-stone to a deeper chemistry. No longer indivisible, it is recognized to be of the highest complexity, and the secrets of its structure are being sought. No longer unchangeable, some of the atoms are actually followed in their decomposition, as radium, and the question is being asked whether perhaps all the atoms may not be slowly resolving themselves into simpler elements. It is probable that to this structure of the atom we must look for the cause of many fundamental conceptions, chemical affinity, valence, ionization, light emission, and others, familiar in their phenomena but still unknown in their origin. This is a part of the task of chemistry to-day.

CHEMISTRY, INDUSTRIAL. The progress of industrial chemistry continues with increasing activity. (The features that are most conspicuous are improved processes, and the per-

sistent struggles after artificial or substitute products that are cheaper and better than those now in use as has been noted in the articles on industrial chemistry in recent volumes of this YEAR BOOK.)

ORGANIZATIONS. The American Chemical Society, with a membership of over 5700, held two general meetings during the year. The first was in Indianapolis, Ind., during June 28-July 1, and the second in Washington, D. C., during December 27-30. The president is Alexander Smith of Columbia University. In April a Connecticut valley section with headquarters in Hartford, Conn., was authorized. The Perkin medal for 1911 was awarded to Charles Martin Hall for his inventions and discoveries in connection with the manufacture of aluminum.

The American Institute of Chemical Engineers held two meetings during the year, one, in Chicago, Ill., during June 21-24, and the other, the annual meeting, in Washington, D. C., during December 20-23. Its president is F. W. Frerichs, St. Louis, Mo.

The dedication of the Chemists' Club of New York City with its occupancy of a new eleven-story building containing auditorium, library, museum, laboratories, offices, social rooms, living quarters, and restaurant at 51 East Fortieth Street, took place on March 17-19, with suitable meetings and functions.

The thirtieth annual meeting of the Society of Chemical Industry of Great Britain was held in Sheffield, during July 12-13. The membership was reported as 4300. Rudolph Messel was elected president in succession to Walter F. Reid.

The Emperor William Scientific Research Foundation established by gifts solicited by his majesty which amounted to \$2,500,000, was formally inaugurated at the University of Berlin, on January 11. The foundation will be used for the maintenance of two chemical research institutes, annexes of the university.

The eighth International Congress of Applied Chemistry will be held in Washington, D. C., on September 4, 1912, and in New York City during September 6-13, 1912, under the patronage of the President of the United States. The honorary president is Edward W. Morley; president, William H. Nichols, and secretary, Bernhard C. Hesse.

METALS. Aluminum is now used in iron and steel works for removing oxygen from the oxides of iron and other substances, the heat generated being so great as to raise the temperature of large bodies of iron. It also has the power of combining chemically with those gases imprisoned during the cooling of the metal, thus preventing porosity. For such purposes the metal is used either in the form of an alloy known as ferro-aluminum or as the pure metal. This property of keeping molten metal hot or of raising the temperature of a molten metallic bath has been utilized in the thermit welding process. In this process aluminum and iron oxide are intimately mixed in a finely divided state and ignited by means of a fuse. The heat of combustion in the ensuing reaction raises the temperature of the casting to the welding point. A new product is bimetallic tubing, which is made of aluminum and steel with the outer sheet of aluminum and the inner of steel, or *vice versa*. The same

combination may be made with aluminum and copper.

The use of titanium in making steel rails has increased considerably, and a railroad in this country which has given rails treated with ferrotitanium a long trial reports that they are proving entirely satisfactory. The use of titanium in arc-light electrodes is also growing. Of these there are two principal types, one of which is an electrode made of finely ground titanium carbide, the other is composed of magnetite, chromium oxide, and rutile.

Tungsten, like chromium, is not malleable, and it possesses hardness and brittleness but not ductility in ordinary or heated conditions. It has been discovered that if the metal is worked while hot, as by hammering, rolling, drawing, or the like, it progressively changes, and after a certain amount of working takes up such molecular structure or characteristics as permit mechanical working at room temperatures. In fact, under such treatment it becomes so ductile as to allow of bending, rolling, and drawing, either at ordinary temperatures (say 20°C.) or hot, as may be preferred. Hence its growing application for electric lamp filaments.

METALLURGY. The discovery of a valuable ore called "calafatita," which is a double sulphate of aluminum and potassium, near Almería, in Spain, is important. It is thought that this discovery may bring about a revolution in the sulphate of soda market, which has up to the present been monopolized by the Germans.

A new process of steel manufacture is announced as being successfully operated at plants in Sweden, Scotland, and Germany. The principal advantages of this process are: (1) the construction and working of the furnace is simplified; (2) the heat of the furnace can be controlled more quickly and more exactly in the open hearth than with ordinary firing; (3) intermittent working is facilitated, the furnace being quickly brought to full heat after standing idle; (4) the charge can be melted and treated more quickly than by the ordinary method, hence the output of a furnace of a given size is increased and the cost of labor reduced; (5) the charge can be kept in a perfectly liquid state throughout, so that it is not necessary to use the last of the contents of the furnace for ingots. One of the most remarkable qualities of this steel is that it shrinks only half as much as ordinary cast steel. Thus, a product equalling crucible steel can be produced in the open-hearth furnace.

During recent years there has been complaint of the "stripping" or "peeling" of the silver from the electroplated articles of the best quality. A series of prolonged investigations has led to the conclusion that the "peeling" is not due to insufficient plating, but to the high content of nickel in the basis metal; that ordinary commercial alloys of copper, zinc, and nickel, containing more than fourteen per cent. of nickel, are of doubtful utility; and that the tendency to strip increases with the thickness of the silver deposit. The properties considered in deciding upon the grade of German silver to be used as a basis metal for electroplating were strength, color, and malleability. However, where thick coatings of silver are concerned whiteness should not be considered as a matter of such prime necessity as the perfect adherence of the silver under conditions of wear, since strength is of more importance than color.

A recent Australian invention to overcome troubles of corrosion and pitting in metals, especially boilers, due to electric chemical action of ingredients in water with which they are brought in contact, appears to have met with success. The plan of the invention is to introduce by dynamos weak electrical currents on to the metals intended to be protected, thus neutralizing the galvanic action of the corrosive substances contained in the water. The process can be worked from any electrical installation already in use, the amount of electricity required being extremely small and such as can be easily regulated. The process is intended to be specially used, not only for protection of boilers, but also for protecting condensers, digesters, feed-water heaters, tanks, tail shafts, stern frames of ships, etc.

ALLOYS. Improved alloys showing lightness and increased strength are of frequent invention. Concerning aluminum alloys it is said that: The result of adding aluminum to copper is to cause an immediate increase both in the strength and in the ductility of the copper. The ductility attains a maximum at 7.35 per cent. aluminum. Beyond that it falls and when eleven per cent. is reached the alloy becomes too brittle to be of any commercial value. Heat treatment has little effect upon alloys containing less than 7.35 per cent. aluminum. Beyond that they are stiffened by heat treatment at 800°C. Alloys containing less than 7.5 per cent. aluminum are not amenable to cold working, though they are improved by hot rolling, while higher alloys are much improved by either hot or cold working.

A new alloy is Liege metal. It is said to be forty per cent. lighter than aluminum and has a density of 1.762. Its surface is grayish-white, reflecting rays analogous to those of poorly worked aluminum. Its composition is: Aluminum, 0.04 per cent.; iron, 0.01 per cent.; zinc, 0.44 per cent.; sodium, 0.21 per cent.; magnesium, 99.3 per cent.

"Vanalium" is an alloy said to be only three per cent. heavier than pure aluminum, and to have high tensile strength, good working qualities, and other properties which would seem to make it specially useful for machine parts where lightness and strength must be combined.

H. R. Hatfield has invented an iron alloy called "stalloy" which contains 3.4 per cent. silicon, and has as its special properties high specific electric resistance and high permeability.

RADIUM. Interest continues in this important element, especially as during the year the discovery of its ore in South Australia, near Mount Poynter, is reported. The deposit is said to be of high-grade ore and is described as uranophane, a hydrous silicate of uranium and calcium. Uranophane is regarded as a product of pitchblende, and when pure contains 67 per cent. of uranium trioxid. Another locality where radium-bearing ores have been discovered is the Wodgina region in the Pilbarra gold-field district, in Western Australia. A new ore of uranium has been found here, called pilbarite. It is of an ochreous yellow to lemon-yellow color, very much like carnotite, and contains 27 per cent. of uranium, together with some oxide of lead and other substances.

SYNTHETIC GEMS. The great difficulty in making artificial gems does not lie in reproducing their optical properties or their hardness and durability, but of bringing about a combin-

ation of both. This is conspicuously the case with the diamond, and yet early in the year announcement was made that large-sized crystals from carborundum had been produced which were very close to the natural stone. The crystals are said to be as colorless and transparent as the natural diamond and have greater lustre and refractive power. But they are so brittle that they cannot be cut and polished like natural diamonds.

Later came the discovery of a new method of making diamonds by Dr. Werner von Bolton, in Berlin. His process is based on the decomposition of illuminating gas by a mercury amalgam, whereby the carbon contained in the gas is crystallized into diamonds. As these diamonds are extremely minute, small bits of diamond dust are introduced into the apparatus, where they serve as mother crystals upon which larger diamonds are gradually built up.

Genuine coral has become so expensive that chemists began experimenting to produce it artificially. It is announced that a synthetic product has been obtained that is guaranteed to be not only of the identical color of the finest pink coral, but also to have the same weight, "feel," and temperature.

SYNTHETIC PRODUCTS. A process for the manufacture of ammonia is described as follows: The chemical inertia of nitrogen toward hydrogen, which has been an insurmountable obstacle to the synthetic production of ammonia, has been overcome by high pressure applied in the presence of catalytics. A mixture of the cheapest nitrogen and hydrogen gases in the proportion of 1 to 3, with uranium powder containing carbon added as a catalytic, was converted into ammonia gas under a pressure of 200 atmospheres and at a temperature of 500° C. Only about 8 per cent. of the gas mixture was converted, but by removing the ammonia gas, either by liquefaction or by means of a chemical absorbent, the transforming process may be made continuous. This is accomplished by connecting a high-pressure rotary pump and a liquefying apparatus with a refrigerating machine to the massive reaction vessels in which the gas transformation takes place.

Synthetic turpentine is on the market in Germany at about the price of American turpentine. In consequence of which the incentive to the manufacture of substitutes has increased considerably, and several companies are devoting themselves exclusively to the manufacture of the synthetic substitute.

The introduction of synthetic indigo has resulted in the decline of the indigo industry in India from 20,981,744 pounds, valued at \$17,848,370 in 1896, to 2,022,832 pounds, valued at \$1,172,718, in 1910. It is believed, however, that by scientific cultivation the natural indigo can be made to compete successfully with the synthetic product.

A German chemist, A. Eichengruen, is reported to have discovered an incombustible substitute for celluloid, which he calls "cellon." It is an acetylcellulose product and is reported to furnish a commercial substitute for celluloid which can be made into all sorts of objects. It can be colored in any way that celluloid can and also be made to imitate tortoise shell. When brought into contact with a flame, "cellon" melts, but does not take fire.

The principle of the manufacture of artificial lace or net rests on the substitution of contin-

uous molding for weaving. The process embraces the following steps: (1) The preparation of a concentrated cellulose paste; (2) the molding of the paste and its subsequent solidification; (3) finishing the net, which includes washing, dyeing, drying, and calendering. In the preparation of a suitable cellulose paste any plastic material may be used, provided it is sufficiently strong and is susceptible of giving a brilliant thread after solidifying and drying. In particular, all derivatives of cellulose used in the manufacture of artificial silk give good results when properly manipulated. A factory in France now making artificial net has manufactured crinoline and artificial silk with a cupro-ammonical solution of cellulose, and introduced, in order not to complicate its existing methods of manufacture, a process for the new net, likewise based on the use of a cupro-ammonical solution, which is successful; but the composition that the factory uses for the manufacture of this artificial net differs completely from those employed in the production of crinoline and of artificial silk. It has to meet certain technical requirements, such as increased tenacity in the cellulose and a maximum of viscosity and rapidity of solidification in the mold. These were the object of long study on the part of chemists, who have arrived at very satisfactory results, taking as a base cellulose, very cheap cotton waste, and linters.

An inexpensive process for the manufacture of artificial wood from straw or dried grass, which it is proposed to utilize for the manufacture of matches, has been shown in London. Straw is passed longitudinally through a pair of crushing rolls, and then between a pair of cylindrical cutters which divide the flattened straw into strips. The surfaces of the cutters are deeply serrated, and are placed together so that the groove of one cutter receives the raised ring of the other. The straw, supplied with an adhesive, is fed to a traveling band, and is inclosed on top and underneath with layers of paper. The layer of straw and paper is passed through a pair of rolls under pressure, and then between a pair of endless chains, one upper and one lower, the links of which form metal molds, and are constructed longitudinal grooves, the edges of which meet opposite one another. The molds are heated, and are pressed together for a sufficient time to enable the agglutinant to harden. After passing between the chains the straw and paper issue in the form of a layer of round splints, which after being cut into the requisite length for matches are dipped into ignitable composition.

An artificial sponge is now made by the action of zinc chloride on pure cellulose. This results in a pasty, viscous mass, which is mixed with coarsely grained rocksalt. Placed in a press mold armed with pins, the mass is pierced through until it appears traversed by a multitude of tiny canals, like the pores of a natural sponge. The excess of salts is subsequently removed by prolonged washing in a weak alcoholic solution. The artificial sponge swells up with water, but hardens on drying, just like its prototype; it is said to be eminently adapted for filtering water for sanitary or industrial uses.

ALCOHOL. The increasing demand for alcohol for industrial purposes has resulted in the exploiting of sources never before considered important. Experiments have been made in Spain to obtain alcohol from the bean or fruit of the

carob tree. After triturating the fruit it was placed in hot water to steep and the sugar or glucose extracted by means of a current of water. The liquid resulting from this process was then allowed to ferment, the glucose being transformed to alcohol, which was then distilled. It was found that 2.3 quarts of pure alcohol could be obtained from 22 pounds of the beans. Owing to the great quantity of carob trees in Spain, this discovery will likely establish an important industry there, as well as in other Mediterranean countries.

From Mexico comes the announcement that the residue from the maguey or social hemp will yield alcohol. In the process of extracting the fibre the "flesh" of the leaf is scraped off by machinery and this, with the exception of a small portion used in the manufacture of packing paper, has been thrown away. This waste, it is now found, together with the juice which escapes during extraction of the fibre will produce a good commercial alcohol. The raw material is placed in tanks with water and allowed to ferment for two days, after which it passes into a specially arranged still. Approximately, the waste of 1000 leaves gives 400 liters of juice, which in turn produces about 80 liters of alcohol of 40°, perfectly good for all uses.

As a result of investigation into the alcohol industry of the Philippines, attention is called to the probability that not only alcohol but sugar can be made from the nipa palm more economically in the Philippines than from sugar cane, and that the possibilities of sugar production from this palm constitute a matter of great importance to the islands. The chief use of the plant, aside from the use of the fibre for hats and various articles, is in the manufacture of alcohol and native drinks from the sap. The report of the Philippine Bureau of Science shows the cost of producing alcohol from the nipa palm as 2.7 cents a liter as compared with 5.8 cents a liter for alcohol from sugar beets at \$5 a ton; 5 cents for alcohol from sugar cane at \$3.25 a ton; 3.4 cents from cassava at \$5 a ton; 6.6 cents from corn at 70 cents a 56-lb. bushel, and similar costs from other sources. There is one distillery in the Philippines which is now producing 93 per cent. alcohol 186 proof at a cost of 5 cents gold a liter on a 12-hour run at the distillery. As for sugar, it is claimed that as the cost of refining will probably be less than that for cane, and since sugar is an expensive raw material for the manufacture of alcohol, more profit is to be made from the nipa lands through the establishment of sugar refineries than distilleries. A similar analysis of the sap and its possibilities from the buri, the sugar, and the coco palms has been made. The buri palm in particular has promising possibilities. This palm is not only used for many purposes, but it is also a producer of starch. The starch is contained in the fibrous interior of the plant. The plant is felled by the natives and is stripped of its bark and leaves. The stem is then chopped into small pieces and is worked in water to extract the starch from the fibre. The starch in suspension in the water gives the latter a milky appearance. It is separated from the water by straining through a cloth woven from a part of the manila hemp fibre and is then dried. The starch is light yellow or brown in color, according to purity. Wet globules dropped on a hot iron plate will turn into a sort of

soot. The starch analyzed shows about 72 per cent. pure starch.

The announcement that it is possible to make alcohol without fermentation is made by an English chemist. His original experiment showed that by slightly warming beer and then driving through it a brisk current of carbon dioxide gas the alcohol could be extracted in the form of minute bubbles. By continuing the process every trace of alcohol could be absolutely eliminated without destroying any of its former qualities as a beverage. By reversing the process he was able to restore the alcohol.

RUBBER. The interest in India rubber has not been so active since the collapse of the speculative "craze" that prevailed in financial centres last year. New uses for rubber continue to be reported and the search for a synthetic product continues. A new source of its production is reported by J. Dybowski, who announces that it is possible to extract commercially from a gum called jelutong 10 to 20 per cent. of rubber. This gum is derived from a plant found in large quantities in the Malay states and can be obtained at a low price in the principal European markets. The method of extracting the rubber is simple and easy, and takes only three or four hours. The preparation costs little, and the product can be sold at a price lower than obtains in the rubber market and yield a handsome profit.

PAPER.—George B. Frankforter announces a new process for making wood pulp from sawdust. It consists in taking small pieces of waste wood or sawdust, laying them on a steel incline over a furnace, and subjecting them to a process of distillation. Carbon disulphid or gasoline is poured over the sawdust, dissolving the turpentine and resin, which pass off as gases into a coil of pipes leading to a tank. The wood pulp remains, free from pitch and suitable for the manufacture of paper.

Bamboo pulp is said to be likely to become an important source of paper stock supply, especially in warmer countries. The difficulty of removing the coloring material has been successfully overcome, and in many respects no other material can compete with it.

LIGHTING. An incandescent light, burning kerosene, has been invented by Herschell M. Conner of Savannah, Ga. The kerosene is confined in a tank, not unlike the carbon dioxide tanks used in soda fountains. These tanks are put under pressure with a hand pump to twenty or twenty-five pounds, forcing the kerosene from the cellar through very fine lead tubing. When the kerosene reaches the burner in a fine stream or spray, it is immediately vaporized. This vapor, spread over a Welsbach burner, makes the light.

A Dutch inventor claims to have discovered the secret of extracting any desired percentage of nicotine from tobacco in the leaf, and caffeine from coffee, which removes the alleged cause of injurious effects. For notes on alcohol in relation to Industrial Chemistry, see **ALCOHOL**.

CHEMISTRY, BUREAU OF. See **FOOD AND NUTRITION**.

CHESS. The prominence attained by Jose R. Capablanca, the Cuban chess champion, was the noteworthy feature of the year 1911 in chess circles. This player to the surprise of the experts carried off the laurels at the international masters' tournament held at San Sebastian, Spain, by winning nine and one-half games

out of fourteen. In this tournament A. K. Rubinstein and M. Vidmar tied for second place, each having nine victories and five defeats. F. J. Marshall, the United States champion, finished fourth with eight and one-half wins out of fourteen games. The Carlsbad tournament was won by R. Teichmann. Other important matches abroad were those held at Berlin in which Lasker defeated Janowski by eight to nothing, at Cologne where Tarrasch and Schlechter each won three games and drew ten games, and at Hamburg where Marshall was a victor over Leonhardt.

The year 1911 marked the end of the Anglo-American cable matches for the international trophy offered by the late Sir George Newnes. Great Britain won the final match by a score of six to four. Thirteen matches in all were played since the series started, Great Britain and the United States each winning six contests with one a draw. The fact that the British players' victory of last year was their third in succession gained them possession of the trophy. Columbia won the 1911 intercollegiate championship, winning eight games and losing four. Yale finished second and Harvard third.

CHESTER. See NAVAL PROGRESS, paragraph *Propulsion*.

CHESTERTON, G. K. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

CHICAGO. See BUILDING; ILLINOIS.

CHICAGO-PHILADELPHIA OPERA COMPANY. See MUSIC.

CHICAGO, UNIVERSITY OF. The total number of students enrolled in the various departments of the university in the year 1911-12 was 6466, an increase of 459 over the enrollment of the previous year. The faculty numbered 337. The amount of productive funds was \$15,945,516 and the income was \$1,644,377. The university during the year adopted a new set of requirements for entrance to the college, and a new curriculum for the bachelor's degree. The new requirements for entrance demand fifteen units, without conditions. A somewhat wider range of subjects is accepted for entrance than previously. Instead of demanding preparation in a list of specified subjects, the university now designates a certain amount of consecutive and concentrated work without attempt to specify the special subjects in which this shall be represented. Students are only permitted to enter on these terms from an approved school, i. e., a school offering a satisfactory four years' course which the university has inspected. The requirements for graduation also involve the principle of continuity and concentration, rather than the previous principles of specifically assigned courses. The amount of entirely free election under the new system closely resembles that under the old, i. e., for a judiciously selected course approximately one-third of the entire high school and college work, but the actual flexibility of the system is much greater than the old in permitting the student to choose in what fields he will specialize. Specialize he must, however, to a considerable extent before he gets through.

The new Harper Memorial library is practically completed. This is altogether the most commanding building upon the grounds, having been erected at a cost of some \$600,000. A large addition has also been made to the Ryerson Physical laboratory through the generosity of the original donor, Mr. Martin A. Ryerson. Extensive additions have been made to the faculty of the College of Education, and the work of this

division of the university is now in the most satisfactory condition which it has ever attained. The president is Harry Pratt Judson, A. M.

CHILD LABOR. LEGISLATION. According to the summary of child labor legislation prepared by the American Association of Labor Legislation there were more laws relating to child labor passed in 1911 by a greater number of States than in any preceding year. Of forty-one States holding legislative sessions in 1911 thirty enacted child labor laws, a total of fifty-nine such laws being passed. The following ten States reenacted their entire child labor code with distinct improvements: Colorado, Michigan, Missouri, New Hampshire, Tennessee, Texas, Utah, Vermont, West Virginia, and Wisconsin. In California, Indiana, Oregon, and South Carolina considerable advancement was made. Nine States extended the fourteen-year minimum age limit for new occupations; five States for the first time prohibited all work during the school term; a number of States strengthened their compulsory school attendance laws. Considerable legislation dealt with dangerous occupations, with night messenger service, and with street trading. The hours of labor for children were shortened in ten States, the eight-hour day for all children under sixteen being established in Colorado, Missouri, and Wisconsin. This makes ten States, besides the District of Columbia, which have an eight-hour day for all children under sixteen. Children under sixteen were excluded from all night work in six States, while California excluded all under eighteen after ten P. M. Night work is now prohibited in thirty-one States. Ten States passed improved laws for the certification of age or education or other requirements of the law. It was noticeable that the more advanced industrial States passed the greatest amount and the most thorough-going child labor legislation, whereas the Southern States as a rule have been slow to accept the progressive conditions. The new States of Arizona and New Mexico took an enlightened position on this subject, this being particularly true of the Arizona constitution.

EMPLOYMENT ON THE STAGE. One of the problems to which the child labor reformers have been giving attention in recent years is the employment of children on the stage. Several years ago the Massachusetts legislature forbade such employment. Since then the theatre managers have endeavored annually without success to secure the enactment of a law exempting stage children from the general child labor law. At the same time the National Child Labor committee has striven for similar anti-stage legislation in other States, securing prohibitory laws in Illinois, Louisiana, and Oregon. In Colorado stage children must secure permits from public school authorities; these may require that the child be accompanied by a teacher or nurse.

POVERTY. One of the chief sources of opposition to child labor reform is the feeling that widowed mothers will be reduced to poverty by such laws. To meet this objection scholarships have been provided in Chicago, Philadelphia, New York, Baltimore, Louisville, and elsewhere. These give a small sum weekly to the family of the widow when partially dependent on the earnings of a child prevented from working by advanced legislation. The States of Ohio, Oklahoma, and

Michigan have followed the Swiss plan of granting state aid. This seems logical, since it is the state which takes away the opportunity to labor. The Ohio law permits relief to be given through the school authorities in money or in the form of textbooks, clothing, and meals. The Oklahoma and Michigan laws require relief to be given in money. Such legislation is deemed much more necessary by reformers for the Southern States, because investigation shows many families wholly dependent on the earnings of small children. Moreover, these States very generally allow exemption from their already inadequate laws where poverty is shown, though Tennessee and North Carolina repealed this exemption in 1911.

DANGEROUS TRADES. Another line of advance is the exclusion from dangerous trades. This is a part of the general movement for conserving the labor power of the country, particularly in relation to industrial accidents and occupational diseases. It has been carried farther in Massachusetts than in any other State. Under the authority of an act of 1910 the Massachusetts State Board of Health has prepared a list of twenty-four different industrial processes from which minors under eighteen years of age are excluded. Ten of these involve exposure to poisonous dust or substances, mostly leads; six involve exposure to irritating dusts, as graphite used in the manufacture of stove polish, bronze in lithographing, emery in polishing, talc in rubber works, and the dusts of rags; four involve exposure to poisonous gases or fumes; three to irritating gases or fumes; and one to excessive heat. During 1911 nine States excluded children under sixteen from a more or less extensive list of occupations. This list included mines in Colorado, Pennsylvania, and Tennessee. Moreover, the age limit for employment in mines and quarries was put at seventeen in Texas and eighteen in Wisconsin.

STREET TRADING AND NIGHT-MESSENGER SERVICE, including boys and girls in cheap theatres and moving picture shows, sellers of newspapers, matches, and shoe blacking, and messenger boys, has been studied intensively in this country and in England. They are often dangerous to both health and morals. Another main objection is that these trades do not lead to stable occupations; they afford no valuable training for adult life and are generally debasing to morals. At the hearing on the Massachusetts night-messenger bill statistics were presented showing that, out of 336 boys at the Lyman School, 110 were former street peddlers; 160 had been newsboys; 72 boot-blacks; and 56, messengers; some were thus engaged in two of these trades. Similar data were secured from the Parental School. Night-messenger service was prohibited in 1910 for persons under twenty-one in New York and for those under eighteen in Ohio. Laws similar to the New York law were enacted in 1911 in Massachusetts, New Jersey, Wisconsin, and Utah; laws applying to persons under eighteen were enacted in Michigan, New Hampshire, Oregon, and Tennessee; Georgia forbade night messenger service to persons under sixteen and Oregon forbade day-messenger service to such. Street trading was restricted and regulated by new laws in Georgia, Nevada, New Hampshire, Massachusetts, Missouri, Utah, and Wisconsin. The Georgia law applied only to girls under ten. The Wisconsin law which is now considered the most perfect on this subject is as follows: The

age limit for selling newspapers is twelve for boys and eighteen for girls; for all other street trades the age limit for boys is fourteen and for girls eighteen years. Boys under fourteen cannot sell papers after 6:30 P. M. in winter nor after 7:30 P. M. in summer. Parents and employers are made responsible and punishable for violations.

In ENGLAND a special committee was appointed to investigate the working of the Employment of Children act of 1903, with reference to street trading. The committee was unanimous in holding that complete prohibition of such trading for minors was not desirable. But a minority did not feel that this could be done immediately. The majority of that committee and also the Royal commission on the poor laws recommended the prohibition of street trading for boys under seventeen and girls under eighteen. Statistics showed that some 40,000 children, sixty per cent. to seventy-five per cent. of whom were under fourteen years of age, were thus engaged in Great Britain. The *London Economist* upheld the recommendation on the ground of social economy and efficiency. It pointed out that these children "are being allowed to endanger their whole prospect of becoming decent citizens in order to earn a few pence." These committees favored the immediate formulation of plans for providing alternative work for all young persons. A bill was introduced in Parliament by Lord Shaftesbury; it raised the age limit of street trades from eleven to seventeen for boys and eighteen for girls.

GLASS INDUSTRY. The employment of boys at night in the glass industry has been a matter of concern among the reformers for some years. In a thorough investigation by Mr. Charles L. Chute, covering ninety-nine plants in Ohio, Indiana, Illinois, West Virginia, and Pennsylvania, he found that 6.3 per cent. of the 33,308 employees were children under sixteen, 1973 boys and 72 girls. The percentages ranged from 3.8 per cent. for Illinois and 4.7 per cent. for Ohio to 9 per cent. in West Virginia and 13 per cent. in Pennsylvania. Since Illinois and Ohio have better child labor laws than Pennsylvania and West Virginia, this difference is in part attributable to legislation, in spite of the numerous obvious violations in the former States. The investigator concluded that, as a result of the passage of child labor laws, the industries have not been crippled, that many children have been transferred from glass plants to schools, and that poverty has actually lessened.

SEASONAL TRADES. Some of the new investigations carried on under the direction of the National Child Labor committee dealt with cranberry-pickers in Massachusetts and oyster-shuckers and shrimp-pickers of the Gulf coast. In these seasonal trades the whole family, sometimes including children not more than three years old, work. Moreover, many of these families drift about from one seasonal occupation to another, perhaps spending the winter months at the Southern oyster and shrimp canneries and the early summer months in the berry fields of Maryland, Delaware, and New Jersey. Though not unhealthy for the children, they grow up in complete ignorance and with no training for steady industrial occupation. These seasonal trades carried on at a distance from industrial centres more or less readily escape the child laws.

OTHER LEGISLATION. In addition to the laws already noted the following brief summary covers most of the important legislation of 1911. California raised the age limit from fourteen to fifteen in most occupations; strengthened its certificate law; prohibited work for children under eighteen between 10 P. M. and 5 A. M., except for children between fifteen and eighteen on the stage; and forbade children under eighteen engaging in any business or selling goods between 10 P. M. and 5 A. M. Colorado placed the age limit at fourteen for all occupations during the school year; children under sixteen may not be employed in concert halls, variety theatres, or in any immoral or dangerous vocation, nor in or about mines, coke ovens, or in certain specified dangerous occupations; the hours for children under sixteen must not exceed eight per day nor forty-eight per week, nor can they be later than 8 P. M.; children under fourteen may not work before 7 A. M. Connecticut forbade the employment of children in certain dangerous trades; provided for an industrial commission to investigate the employment of women and children, to report April 1, 1913; and limited the power to issue certificates to the State Board of Education. Delaware authorized a commission to report to the next legislature (in 1913) on child labor conditions. Idaho prohibited the employment of children during school hours and between 9 P. M. and 6 A. M. Illinois strengthened its certificate law. Indiana prohibited employment under fourteen, except on farms or in domestic service, but children of ages twelve to fourteen may be employed in canning between June 1 and October 1; the hours for children under sixteen are limited to nine per day and fifty-four per week, but without the consent of parent or guardian the house cannot exceed eight per day or forty-eight per week; night work under sixteen is prohibited; children under sixteen, and in some trades girls under eighteen, may not be employed in a specified list of dangerous occupations. Maine repealed the law exempting canneries from the child labor law except as to hours. Massachusetts reduced the hours per week from fifty-six to fifty-four, except that in seasonal trades fifty-eight are allowed; certification conditions were raised; and the Board of Education was directed to investigate the advisability of part-time schooling, vocational or otherwise, for working children and the establishment of an apprenticeship system, and to report January, 1913. Michigan amended its certification law and excluded children from employment on the stage in shows, pool-rooms, and dance-halls. Missouri forbade the employment of children under fourteen, except in agriculture and domestic service; and extended the list of dangerous occupations from which children under sixteen are excluded by adding match-making, work with explosives, work in breweries, hotels and some other establishments; the hours of labor for children under sixteen were reduced to eight per day and forty-eight per week; night work was forbidden between 7 P. M. and 7 A. M.; the certification law was strengthened; boys under ten and girls under sixteen were forbidden to sell newspapers or merchandise in the streets or in public places. Nevada greatly extended its compulsory education law. New Hampshire barred children under twelve from manufacturing and mercantile establishments; the hours for boys under sixteen and girls under eighteen were limited to eleven per day and fifty-eight per

week; night work was forbidden to these same persons, except that girls over sixteen may work until 10 P. M. in retail stores and telephone exchanges; a school certificate law was improved; and provision made for the discharge of working children whose health is in danger. New Jersey prohibited children under fourteen in mercantile establishments during school hours; prohibited children under sixteen from working in such establishments more than fifty-eight hours a week or between 7 P. M. and 7 A. M., except that they may work until 9 P. M. one day a week and until 10 P. M. between December 15 and 25. New York added barber shops, shoe-polishing establishments, and theatres in which the employment of children under fourteen is prohibited and where children under sixteen may be employed not more than six days or fifty-four hours a week or nine hours a day and not after 7 P. M. or before 8 A. M. North Carolina reduced the hours of children in factories from sixty-six to sixty per week. Ohio established a commission to revise, consolidate, and suggest amendments to its child labor laws. Oregon forbade children under fourteen to work in mercantile establishments, business offices, restaurants, bakeries, hotels or apartment houses, or anywhere during the school term. It created a board of inspection of child labor with a paid secretary to enforce the child labor law. Pennsylvania greatly improved various laws regulating the employment of children in mines. South Carolina raised the age limit for children employed in mines and factories from twelve to sixteen years. Tennessee extended the scope of the fourteen year age limit; and prohibited the employment of children under sixteen in certain dangerous occupations. Texas prohibited the employment of children under fifteen about dangerous machinery; excluded them from employment in distilleries or breweries, or in employments dangerous to health or morals. Utah excluded children under fourteen from certain dangerous or injurious occupations, including theatres; forbade the employment of girls under twenty-one where liquors are made or sold; limited to fifty-four hours per week the work of boys under fourteen and girls under sixteen; prohibited boys under twelve and girls under sixteen from selling newspapers or merchandise in first and second class cities; required that bootblacks must be at least twelve years of age; and forbade persons under twenty-one being employed in saloons, breweries, or liquor bottling establishments. Vermont forbade the employment of children under twelve in mercantile establishments and under fourteen on railroads or in factories, quarries, or workshops; children under sixteen are excluded from certain dangerous occupations, and night work after 8 P. M. was prohibited for them. West Virginia placed the age limit for manufacturing establishments at fourteen and required a high standard employment certificate for all children under sixteen. Wisconsin greatly extended the list of dangerous occupations from which children under sixteen are debarred and excluded children under eighteen from a list of especially hazardous occupations; night work for those under sixteen was prohibited; a forty-eight-hour six-day week was established for children under sixteen and the certificate law was improved by adding requirements for documentary proof of age.

MODEL LAW. All child labor reformers are agreed that one of the greatest difficulties in se-

curing progressive legislation is the existence of competition between States. Thus, Illinois manufacturers fear a law limiting the employment of children to eight hours per day when Wisconsin and Indiana laws permit ten hours per day. Federal statutes are not as a rule considered feasible because of the limited jurisdiction of Congress. The United States Commission on Uniform Laws is endeavoring to overcome these difficulties by formulating and agitating the adoption of a model uniform law. This model prohibits the employment of children under fourteen years and regulates the employment of children above that age. It forbids night work and occupations considered dangerous to health or morals for children under sixteen. It requires that the child must secure a certificate from school and medical authorities showing educational and physical fitness. Very dangerous trades are not open to children under eighteen, and in some cases not even for those under twenty-one. Girls under twenty-one cannot be employed in coal mines or quarries, and no minor in saloons, bar rooms, or night messenger service. All street trades are regulated; and are forbidden to boys under ten and girls under sixteen. The hours of employment are limited to eight per day and forty-eight per week, between 7 A. M. and 7 P. M., for boys under sixteen and girls under eighteen. Every feature of this law is in force in some State. This law has been approved by the National Child Labor Committee and by the American Bar Association and is to be at once submitted to the legislatures.

CHILD LABOR CONFERENCE. The seventh annual Child Labor Conference under the auspices of the National Child Labor Committee was held at Birmingham, Ala., in April. The report showed much progress in the past seven years. The membership of the committee reached over five thousand and the annual expenses more than \$60,000. Besides the trained workers maintained by the committee, there were reported twenty-seven State and local committees. The work remaining to be done in the reforms advocated by this committee was suggested by the following conditions: Ten States still allowed children under fourteen to work in factories; eight still allowed boys of twelve to work in mines; fifteen allowed children under sixteen to work at night; only a few States have an eight-hour day for children; proof of age and factory inspection are very inadequate. The committee is giving attention also to industrial education and vocational guidance.

CHILD LABOR COMMITTEE, NATIONAL. See CHILD LABOR.

CHILD LABOR CONFERENCE. See CHILD LABOR.

CHILDREN, WAYWARD. See JUVENILE COURTS.

CHILDREN'S COURT. See JUVENILE COURTS.

CHILE. A republic south of Peru on the Pacific coast of South America. Capital, Santiago.

AREA AND POPULATION. Chile comprises 23 provinces and one territory, with an estimated area of 292,419 square miles (including Tacna province, 9248 square miles, claimed by Peru). The census of November 27, 1907, showed 3,249,279 inhabitants (Tacna, 28,748); the population in 1911 was probably about 3,400,000. Population of the larger cities (1907 census):

Santiago, 332,724; Valparaiso, 162,447; Concepción, 55,330; Iquique, 40,171; Talca, 38,040; Chillán, 34,269; Antofagasta, 32,496. Movement of the population:

	1907	1908	1909	1910
Births	126,104	129,733	129,261	129,999
Deaths	96,534	104,226	107,369	109,399
Marriages	21,286	21,483	19,543	19,352
Immigration	8,462	6,024	3,098	2,543

EDUCATION. Primary instruction is free, but not compulsory. At the end of 1910 there were 2716 public primary schools, with 4829 teachers and 258,875 pupils enrolled; private schools with state assistance had 36,577 pupils, and without state assistance, 30,385. The seventy-four lycées had 18,669 students, and the two universities 2490; 15 normal schools, 2222; and various manual training and commercial schools, 2296. In addition there were several technical schools. The state religion is Roman Catholicism, but religious toleration prevails.

AGRICULTURE. Wheat and other cereals are the most important crops, but large quantities of fruits, vegetables, and wine are produced. The reported area under cultivation in 1909 was 9,211,324 acres; estimated value of agriculture products in 1910, \$75,000,000. Pastoral interests are developing, notably in the south; in 1910 some 21,600,000 pounds of wool were shipped from Punta Arenas, which has rapidly become a prominent port. Reported annual slaughter: Cattle, 450,000; sheep 600,000; swine, 140,000.

MINING. Chile owes its national prosperity largely to its mineral resources. Coal is mined, though not in sufficient quantity for home consumption, and copper, for which the country was once famous, shows a tendency to regain its former importance. The value of gold and silver produced is comparatively small. But the leading mineral, and by far the country's greatest single source of wealth, is sodium nitrate, produced in the arid north, in Antofagasta and Tarapacá, and widely used as a fertilizer. The value of the mining products is fairly represented by the export figures in the section on *Commerce*.

MANUFACTURES. These include household supplies, shoes and other leather goods, furniture, textiles and clothing, alcoholic beverages, metal wares, etc. There are large works for the reduction of nitrate. For 1910 there were reported 5321 industrial establishments operating with more than four employees each, with total employees 75,816, capital \$83,756,268, and production, \$112,769,387.

COMMERCE. Imports and exports have been valued as follows: 1908, 267,264,169 pesos gold and 319,140,072 pesos gold respectively; in 1909, 262,082,763 and 306,429,909; 1910, 297,485,697 and 328,827,176. Values in thousands of dollars (converted from pesos at 36.5 cents to the peso) have been:

	1901	1907	1908	1909	1910
Imports	50,485	107,194	97,551	95,660	108,582
Exports	62,723	102,229	116,489	111,847	120,022

Imports by major groups in thousands of dollars:

	1908	1909	1910
Imports			
Textiles	20,377	23,102	29,118
Mineral products	17,119	16,824	18,825
Coal, oils, etc.	17,100	16,571	18,778
Vegetable products	8,633	10,509	11,854

Imports (cont.)	1908	1909	1910
Machinery, hardware, etc.	19,438	10,309	9,513
Animal products	6,786	10,065	9,142
Paper and mfrs.	2,906	2,536	3,361
Liquors	1,851	1,931	2,584
Chemical products, etc.	1,983	2,020	2,336
Arms, explosives, etc.	635	829	1,598
Miscellaneous	823	843	1,473
Total	97,551	95,660	108,582

Cotton textiles were valued at \$14,441,030 in 1910; woolen, \$7,046,033; iron and steel, \$12,242,739; coal and other mineral fuels, \$17,070,898; live animals, \$5,503,842.

Exports by major groups, in thousands of dollars:

Exports	1908	1909	1910
Mineral products	99,083	89,101	98,234
Animal products	6,092	8,438	8,824
Vegetable products	8,937	11,023	8,075
Reexports	1,779	3,109	4,239
Liquors	72	57	65
Specie	54	1	.....
Miscellaneous	474	119	586
Total	116,489	111,847	120,022

Nitrate export in 1910, 2,356,667 metric tons (valued at \$86,018,364), of which 849,149 to Great Britain, 586,692 to the United States, and 496,165 to Germany; copper, 26,082 tons; copper ore, 78,518 tons.

Imports and exports by countries, in thousands of dollars:

	Imports		Exports	
	1909	1910	1909	1910
Great Britain	31,879	34,341	46,928	46,387
Germany	22,647	26,296	23,932	23,143
United States	9,636	13,370	19,651	24,681
France	5,662	7,011	5,217	5,237
Argentina	6,618	5,478	793	1,048
Peru	4,743	5,445	1,031	970
British India	2,552	4,018	.....	.....
Italy	2,630	3,228	1,000	443
Australia	3,194	2,721	.....	.....
Belgium	2,761	2,465	2,899	3,438
Spain	877	1,250	528	1,990
Brazil	478	749	120	214
Ecuador	445	463	.....	.....
Uruguay	535	331	187	226
Netherlands	54	201	3,356	2,451
Other	843	960	3,095	5,554
Reexports	.....	.....	3,109	4,239
Total	95,660	108,582	111,847	120,022

Vessels entered (1909), 14,587 of 24,923,308 tons; cleared, 14,402 of 24,696,585.

COMMUNICATIONS. Railways in operation at end of 1910: Government owned, 2672 kilometers (1660 miles); privately owned, 3078 kilometers (1913 miles); total, 5750 kilometers (3573 miles). Of the government longitudinal railway, to connect Arica with Puerto Montt, distant 3431 kilometers (2132 miles), about 1770 kilometers (1100 miles) were in operation, 1368 kilometers (850 miles) under construction, and the remainder under survey. The important Arica-La Paz line, which extends into Bolivia, was virtually completed at the close of 1911. Telegraph lines (1910), 22,334 miles (of which 16,513 miles government, with 367 offices); post offices, about 1100.

FINANCE. The monetary standard is gold, and the unit of value the peso, worth 36.5 cents. The current value of the paper peso was about 21 cents in 1909 and slightly under 22 cents in 1910.

Ordinary revenue in 1910 amounted to 82,764,423 pesos gold and 152,975,645 pesos paper; during the year the treasury sold gold to the amount of 23,238,519 pesos, which sum produced 39,333,216 pesos paper (the gold premium being about 69.2); the revenue, hence, is stated at 59,525,904 pesos gold and 192,308,861 paper. The expenditure is stated at 60,677,704 pesos gold and 234,143,253 paper. With the gold peso valued at 36.5 cents and the gold premium estimated at 65 (the figures used in the Chilean reports), the revenue and expenditure for 1910 are equivalent to \$64,049,081 and \$73,942,688 respectively. The chief sources of revenue were: Nitrate export duties, 79,665,417 pesos gold; state railways, 47,760,751 paper; import duties, 44,436,032 paper; surtax on imports, 29,608,792 paper. Estimates of expenditures for 1911, published in March of that year, were 241,744,448 pesos paper (\$48,348,888 United States currency), and 63,124,573 pesos gold (\$23,040,469 United States currency). Foreign debt (December 31, 1910), \$25,258,620 (336,781,600 pesos gold, or \$122,921,074); internal debt, 6,093,800 pesos gold and 179,465,191 paper (with the gold premium at 65, \$39,699,876); total debt, \$162,620,950.

NAVY. As reported for 1911, the navy included: Two battleships, aggregating 15,600 tons; one armored cruiser, 7000; four protected cruisers, 14,500; two torpedo cruisers, 1470; seven torpedo-boat destroyers, 2270; five first-class torpedo boats, 728; and several auxiliary vessels and transports. The development of the Argentine and Brazilian navies has forced the Chilean government to adopt a plan of naval construction. In 1911 a contract was made for an English-built battleship of 28,600 tons and a battery of ten 14-inch guns, and a similar vessel was authorized. Also in 1911 six destroyers were ordered in England and two submarines in the United States.

ARMY. An active army with a strength of 18,000 men is maintained, capable of being increased on a war basis to 150,000 men by including a part of the national guard and other forces. Most of these are inadequately trained but are available for raising the war strength up to 350,000. The organization in 1911 included ten regiments of infantry, eight regiments of cavalry, twenty batteries of field artillery, one mountain battery, two battalions of mounted infantry, and a corps of engineers. During the year Chile ordered 200 field guns of the standard Krupp pattern, 14.3 pounders. These were similar to the Italian guns and fired both shrapnel and universal shell.

GOVERNMENT. The executive authority is vested in a president, elected indirectly for five years and assisted by a council of state and a responsible ministry. The legislative power devolves upon a congress of two houses, the Senate (37 members) and the Chamber of Deputies (108). The president for the term beginning September 18, 1906, was Pedro Montt, who died August 16, 1910, and was succeeded by the vice-president, Elías Fernández Albano. Señor Albano died September 6, and the minister of justice, Emiliano Figueroa, assumed the executive duties. A new president was elected on November 15 in the person of Ramón Barros Luco, who was inaugurated December 23, 1910. A new cabinet was announced in August as follows: Premier and minister of the Interior, J. R. Gutiérrez; Foreign Affairs, E. Rodríguez; Jus-

tice, B. Montt; Finance, P. N. Montenegro; War and Marine, A. Huneeas; Public Works, E. Zanartu.

HISTORY. On July 10 King George rendered his award in the Alsop claim. It assigned £187,000 to the Alsop firm in full settlement, and Chile paid this amount through the United States government on November 13. The original amount of the claim was £600,000, with interest. The award was received with satisfaction in the United States, through whose government Chile paid. The claim arose over forty years ago from a debt incurred by a Brazilian to the firm of Alsop & Co., of Valparaíso, a chartered Chilean concern, but with American members. In settlement of the debt the Brazilian made over to the firm certain claims from Bolivia lying in territory which was afterwards, as a result of the war of 1879, ceded to Chile. In 1909 Secretary Knox demanded the reference of the claim to The Hague, but to this Chile objected unless her government were allowed to use the argument that Alsop & Co. had been expressly excluded from the rights of American nationals by the Chilean-American Claims Tribunal in 1900, the American government having insisted on this exclusion. Finally, Secretary Knox issued an ultimatum demanding the reference to The Hague or payment of a million dollars to the United States. Later, however, an alternative was offered, namely, the reference of the claim to King Edward as arbitrator and finally Chile was induced to accept this. In June the long-standing dispute with Peru caused an outbreak, the immediate occasion being the question of holding mass in the churches of the disputed territory, but no serious consequences followed. In September a severe earthquake caused much loss of life and damage to property in the northern provinces. Early in November a severe epidemic of smallpox at Santiago caused much alarm. The authorities declared that the city was infected and warned the public against traveling on street cars and in hired carriages.

CHILTON, ROBERT S. An American public official, died May 18, 1911. He was born in Westfield, N. J., in 1822. In 1848 he removed to Washington and entered the patent office as librarian. He was transferred to the State Department in 1862. He served as private secretary to Secretary Seward and had much to do with the handling of the Confederate documents which were surrendered to the federal government at the close of the Civil War. In 1866 he was appointed commissioner of immigration. He entered the consular service in 1871 as American representatives at Clifton, Canada. He served in this capacity at several other cities in Canada until he resigned from the consular service some ten year previous to his death.

CHILTON, WILLIAM EDWARD. United States Senator (Democrat) from West Virginia. He was born in Kanawha in 1858. He studied law and was admitted to the bar, practicing his profession in Charleston. In 1883 he was appointed prosecuting attorney of Kanawha county. During the campaign of 1892 he was chairman of the Democratic State Executive committee and was appointed Secretary of State to serve from March 4, 1893, to 1897. He was elected to the United States Senate February 1, 1911, to succeed Senator Scott. His term of office expires in 1917.

CHINESE EMPIRE. A monarchy of eastern and central Asia. Capital, Peking. At the close of 1911 the country was in civil war.

AREA AND POPULATION. The estimated area of the empire is 4,274,170 square miles. Estimates of population vary widely, and the results of so-called Chinese censuses, based on estimates and on the enumeration of households, rather than of persons, are mere approximates. Such censuses of China proper (the eighteen provinces—1,532,420 square miles) have shown the following totals: For the year 1761, 190,257,000; 1812, 360,440,000; 1842, 413,021,000; 1882, 381,309,000; 1885, 377,636,000; 1910, 309,670,000 (exclusive of military). This last figure, based on the census taken in 1909 and 1910, is subject to revision, and contains only partial returns for Szechuen; the figure used for this province is 16,406,000, whereas complete returns will probably show some 49,000,000, thus bringing the 1910 "census" figure up to about 342,000,000. Some authorities regard this total as much too great, and incline to the 1904 estimate of Mr. Rockhill, the American minister at Peking, viz., 270,000,000. The great difficulty is in ascertaining the average number of persons in a household, the unit of enumeration. In the 1910 census for China proper, the number 5.5 is used, while Mr. Rockhill believes that 4 more nearly approximates the facts. The Chinese estimate of 1902 and subsequent estimates of the Imperial Maritime Customs are undoubtedly so excessive as to be of little value; the customs 1900 estimate is 439,214,000. The following table shows the estimated area of the several parts of the empire, the Chinese estimate of population for 1902, and figures based on the 1910 census. The figures in the 1910 column for Mongolia and Tibet are not derived from census returns, but are accepted by many as more nearly accurate than those of the 1902 estimate.

Empire	Sq. mi.	Pop. '02	Pop. '10
China proper	1,532,420	407,253,030	342,000,000
Manchuria	363,610	16,000,000	14,917,000
Mongolia	1,367,600	2,600,000	1,850,000
Tibet	463,200	6,500,000	2,250,000
Sinkiang	550,340	1,200,000	2,491,000
Total	4,274,170	433,553,030	*365,200,000*

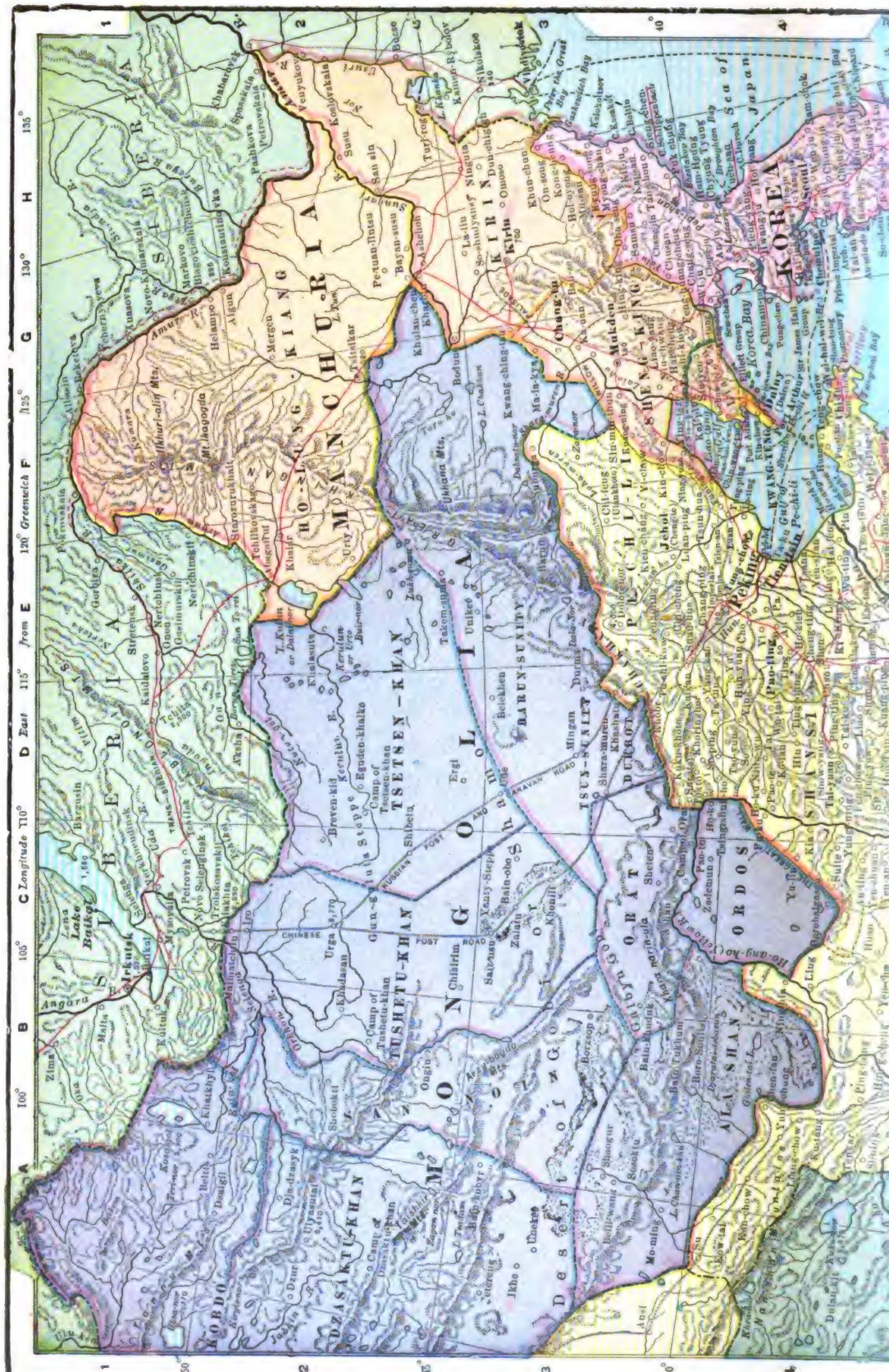
* Including 1,700,000 military not tabulated elsewhere.

Population of China proper, by provinces, according to the census of 1885 and the census of 1910 (subject to revision) in millions:

Provinces	1885	1910	Provinces	1885	1910
Chekiang	11.7	17.1	Kwangtung	29.7	27.7
Fukien	23.5	18.1	Kweichow	7.7	11.3
Honan	22.1	25.6	Nganhul	20.6	17.3
Hunan	21.0	23.6	Pechili	17.9	26.9
Hupe	33.6	24.9	Shansi	10.8	10.0
Kansu	5.4	5.0	Shantung	36.5	29.6
Kiangsi	24.5	14.5	Shensi	8.3	8.3
Kiangsu	21.3	17.3	Szechuen	71.1	16.4*
Kwangsi	5.1	6.5	Yunnan	11.7	8.5

* Partial returns.

The 1910 figures in the foregoing table are stated to be exclusive of persons connected with the military to the number of 1,700,000 and of Peking, its suburbs, and a surrounding territory known as the metropolitan district; the population of the district, suburbs, and city is re-





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ported at 5,671,000, of which city and suburbs 1,017,000, and city proper about 700,000. Estimates (not census returns) for the larger treaty ports are (1910): Canton, 900,000; Hankau, 820,000; Tientsin, 800,000; Shanghai, 651,000; Foochow, 624,000; Chungking, 598,000; Soochow, 500,000; Ningpo, 400,000; Hangchow, 350,000; Nanking, 267,000; Changsha, 230,000; Chinkiang, 184,000; Antung, 143,000; Wuhu, 129,000; Amoy, 114,000; Wenchow, 100,000; Swatow, 96,000; Chefoo, 95,000. In 1910 the reported number of foreigners living in the treaty ports was 141,868, of whom 65,343 were Japanese, 49,395 Russian, 10,140 British, 4106 German, 3377 Portuguese, and 3176 American.

The three recognized religions are Confucianism (the state religion), Buddhism, and Taoism. Native adherents of religions properly foreign to China include Mohammedans, estimated at 30,000,000 (probably the estimate is too high), Roman Catholics 1,000,000, and Protestants 150,000.

EDUCATION. There are three classes of schools—the old-style schools, the mission schools, and the institutions established by the government pursuant to the imperial decree of September 3, 1905. The old-style schools are private institutions, whose curriculum is practically confined to the Chinese classics, examination in which, for state employment, was abolished by the above-mentioned decree. This decree provided for an elaborate system of education, modeled on that of Japan. It was recognized that considerable time must elapse before the new system, differing radically from the old in aim and method, could be satisfactorily developed, but in 1911 the general condition of the educational movement was regarded as encouraging, particularly in and about Peking. It is to be noted that military schools have recently sprung up in many parts of China. Besides the Imperial University at Peking and the finely equipped Imperial University at Tientsin, both of which have European, Japanese, and Chinese professors, there are various schools or colleges for higher and technical education.

In place of the competitive examinations for securing the best candidates to be sent to the United States for study, a special school was established in 1910 near the summer palace, outside Peking, and American teachers were engaged to fit students for admission to American colleges.

According to official reports submitted by the ministry of education to the throne in 1908 and at the close of 1910, the students in the provincial schools numbered 1,013,571 in the former year and 1,284,965 in the latter, an increase of 274,518, including an increase of 3951 in the number of special students, and 4923 in the number of students in industrial schools. In Peking the number of students increased from 11,417 (1908) to 15,774 (1910), and the number of schools from 206 to 252. The reports also showed that while in 1908 the government schools, that is those supported by officials, exceeded in number those maintained by public and private contributions, in 1910 the public and private schools were the more numerous.

INDUSTRIES. China proper is a distinctively agricultural country and for the most part is divided into small holdings. In the north, the principal crops are wheat, barley, corn, millet, and other cereals, and beans and peas; in the south, rice, cotton, sugar, and indigo. Tea and

silk cocoons are very important products, the former in the west and south, the latter in every province. About 27 per cent. of the world's supply of raw silk comes from China. Large amounts of opium have been produced, but the output, pursuant to government decree, and the importation from India, through the coöperation of the Indian government, are being gradually contracted.

China is rich in minerals and is one of the first coal countries in the world, but, in general, exploitation has not attained a great development. The minerals worked to a greater or less degree include coal, tin, iron, antimony, lead, zinc, copper, and salt. Of the metals, tin (in Yunnan) and iron are the most important.

COMMERCE. Though the foreign trade of 1909 was the greatest recorded up to that time, it was exceeded by the trade of 1910. Imports for consumption and exports of domestic produce have been valued as follows in haikwan taels (the haikwan, or Maritime Customs, tael, is 1½ ounces avoirdupois, or 583.3 grains, or 37.783 grammes, and had a value of about 79 cents in 1907, 65.5 cents in 1908, 63.4 cents in 1909, while the average for 1910 was 66 cents).

	1907	1908	1909	1910
Imp.	416,401,369	394,505,478	418,153,067	462,964,894
Exp.	264,380,697	276,660,403	338,992,814	380,833,328

Principal articles of import in thousands of haikwan taels:

Imports	1907	1908	1909	1910
Cotton goods*.....	118,916	110,898	137,791	135,646
Opium	28,654	34,226	36,027	55,411
Rice	34,417	26,579	15,655	31,320
Sugar	26,359	19,801	27,173	22,441
Kerosene	20,203	27,826	23,028	21,744
Railway materials	12,805	12,894	13,108	15,106
Dyes, etc.....	9,169	7,072	7,932	9,720
Flour	13,985	6,931	8,742	.....
Tobacco	5,823	6,930	7,421	9,418
Iron	5,889	6,977	8,489	9,252
Fish	8,353	7,712	7,712	8,959
Coal, etc.....	7,669	8,436	8,443	8,196
Machinery	6,150	6,846	5,825	6,897
Wood	7,458	6,429	5,284	6,001
Matches	4,896	5,158	5,657	5,275
Leather .....	.....	.....	.....	4,740
Paper .....	.....	.....	.....	4,181
Woolen goods	6,899	4,340	3,310	4,116

* Including cotton yarn, valued in 1909 at 71,154,000 hk. tls., and in 1910 at 65,304,000 hk. tls.

The increase in the value of the opium import in 1910 was entirely due to rise of prices, as the net import by weight fell from 48,817 piculs in 1909 to 35,358 in 1910. Leading exports in thousands of haikwan taels:

Exports	1907	1908	1909	1910
Silk*	83,084	85,709	93,487	103,731
Beans and bean-cake	12,390	23,562	52,220	36,681
Tea	31,736	32,891	33,567	35,931
Cotton	17,118	10,516	14,613	28,352
Hides, skins.....	11,117	12,074	16,479	19,330
Sesame	3,671	9,138	11,674	14,377
Oils	4,226	5,481	6,850	13,992
Straw goods	10,524	11,098	12,428	11,921
Vegetables and provisions	2,515	.....	8,426	11,314
Tin	3,376	4,483	4,125	6,246
Wool	4,531	4,490	7,827	5,191
Livestock	3,756	4,225	4,415	4,553
Fireworks	4,211	.....	4,160	4,075
Wood .....	.....	.....	.....	3,876

Exports (cont.)	1907	1908	1909	1910
Flour .....	.....	.....	.....	3,575
Tobacco	2,816	.....	3,086	3,512
Paper	3,337	3,439	3,407	3,606
Peanuts .....	.....	.....	.....	3,120
Medicines	2,411	.....	2,795	3,003

* Including raw silk, valued in 1909 at 71,154,000 hk. tls., and in 1910 at 80,242,000 hk. tls.

Imports (including reexports) by countries, in thousands of haikwan taels:

Countries	1907	1908	1909	1910
Hongkong	155,642	150,252	150,471	172,466
Japan	57,461	52,501	59,975	76,756
Gr. Britain	77,563	72,561	68,230	70,949
Br. India	32,913	30,499	40,434	43,958
U. States	36,903	41,246	32,607	24,799
Germany	16,177	14,039	15,189	21,368
Russia	913	8,652	15,415	16,047
Belgium	10,581	8,450	10,858	11,561
Straits and Singapore	5,348	5,418	6,779	8,308
Italy	8,038	9,840	8,861	10,827
Indo-China .....	.....	.....	6,045	5,981
Dutch E. Ind. ....	.....	.....	6,838	5,756
France	3,159	2,403	2,182	2,761
Korea .....	.....	1,320	2,096	2,382
Netherlands .....	.....	.....	1,774	1,198
Br. America	1,130	1,203	1,391	1,158
Italy	609	509	466	508
Other	24,828	14,680	3,978	4,197
Total	429,072	409,555	430,049	476,554
Reexports.	12,670	15,050	11,891	13,589
Net total	416,401	394,505	418,158	462,965

Domestic exports by countries, in thousands of haikwan taels:

Countries	1907	1908	1909	1910
Hongkong	97,226	92,108	96,919	108,723
Japan	39,347	37,120	51,558	61,606
Russia	17,201	29,559	40,432	45,962
France	30,659	32,129	38,598	38,830
U. States	26,598	23,824	32,446	32,289
Gr. Britain	12,108	12,555	19,679	18,708
Germany	6,109	7,094	7,629	13,342
Italy	8,038	9,840	8,851	10,827
Netherlands .....	.....	.....	4,672	7,184
Belgium	3,979	4,388	5,070	6,541
Straits and Singapore	4,060	3,786	4,800	5,618
Macao	4,092	4,418	4,674	4,657
Br. India	3,180	4,090	4,813	4,535
Korea .....	.....	2,595	2,917	2,620
Indo-China .....	.....	.....	1,920	2,112
Br. America	701	1,148	1,254	1,571
Dutch E. Ind. ....	.....	.....	1,204	1,433
Other	24,828	11,996	11,763	14,271
Total	264,381	276,660	338,993	380,838

SHIPPING. In 1909 and 1910 the entrances and clearances combined in both the foreign and the coasting trade were as follows (tonnage in thousands):

Flag	1909		1910	
	Vessels	Tons	Vessels	Tons
British	27,699	34,027	28,000	34,253
Japanese	30,808	18,949	31,197	18,903
Chinese	34,038	12,790	36,909	14,147
German	5,854	7,244	5,361	7,061
French	5,141	4,920	3,766	4,923
Russian	1,267	837	2,541	1,441
Norwegian	1,420	1,352	1,101	1,089
American	815	807	1,286	725
Chinese (Junks)	101,015	5,071	109,166	5,451
Total, incl. other	208,516	86,772	219,810	88,777

In 1909: Steam, 87,802 vessels of 80,613,800

tons, and sail, 120,714 of 6,157,919 tons; in 1910: Steam, 96,196 vessels of 82,337,331 tons, and sail, 123,614 vessels of 6,439,358 tons.

COMMUNICATIONS. Roads in China are numerous, but generally in poor condition. More important commercially are the rivers and canals. The length of railway open to traffic in June, 1911, is reported at 5342 miles. Some of the lines are owned by the government, some by private companies. In the early summer of 1911, an imperial decree was issued announcing the government's determination to nationalize all privately owned main lines in the empire. The government stated that railway nationalization was necessary for the proper defense of the country; whatever this may or may not have meant, it was clear that the government desired to lessen foreign interests and influence in China. Moreover, there had come to light the fact of gross mismanagement and speculation on the part of officers and directors of some of the companies. Railway constructed was far disproportionate to the many millions invested in shares by the public and so, when the government proceeded to take over the lines at their actual physical value, a large and immediate loss to the stockholders in some companies was apparent. Disapproval of the government's policy, on the part of the people as well as of the affected companies, was quickly manifest, especially in Szechuen and Hunan, and culminated in the September insurrectionary outbreak in Szechuen. The so-called Hukwang foreign loan of £6,000,000 (which is included in the total sterling debt given in the section Finance) was contracted in May, 1911, for railway construction, particularly on the Szechuen-Hankow and Canton-Hankow lines.

In 1911 railways in operation included the following: (1) Chinese Eastern Railway (Russian control), in Manchuria, from Kuanchengtzu north to Harbin and thence east and west to Russian frontier, 1080 miles (the Tsitsikar light railway of 17 miles connects with this line). (2) South Manchurian Railway (Japanese control), from Kuanchengtzu, south to Dairen (Dalny), 439 miles; branches: Mukden to Antung, 189; Choushuitzu (near Dairen) to Riojun (Port Arthur), 39; Tashihkiao to Yingkou (Newchwang), 13; Yentai to Taikang, 10; Suchiatun to Fushun, 34. (3) Imperial Railways of North China, from Mukden to Shanhaikuan (on the frontier between Manchuria and China proper) and thence to Peking, 522; branch: Koupangtze to Yingkou, 57 (of the main line about 275 miles and all of the other foregoing lines are in Manchuria); other branches: Peking to Tungchow, 12; Peking to Lukoukiao, 4. (4) Peking-Kalgan Railway, 135 miles; branch: Peking to Mentokow, 16. (5) Peking-Hankow Railway, 755; branches: Liang Siang to Tuli, 12; Koapetien to Siling, 36; Liuliho to Chowkweichwang, 10; Kaoyih sien to Liucheng, 11. (6) Shansi Railway, Shihkioachwang to Taiyuanfu, 151. (7) Kaifengfu to Honanfu, 140. (8) Taokow-Tsinghwhachen Railway, 96. (9) Shantung Railway, Tsingtai to Tsinan, 256. (10) Canton to Samshui, 32. (11) Chuchow to Pinghsiang, 65. (12) Shanghai-Nanking Railway, 193; branches: Shanghai to Wusung, 10; Nanking City Railway, 8; (13) Swatow-Chaochow Railway, 24. (14) Loaki to Yinnanfu, 291 (the continuation of the French Indo-Chinese line from Hanof). (15) Canton to Kowlun (in the British ceded territory op-

posite Hongkong), 111; this line was opened October 4, 1911.

The following lines were under construction in 1911: (1) Canton to Hankow, 650 miles; about 60 miles open from Canton. (2) Szechuen-Hankow Railway, Chengtu to Hankow, about 800 miles; work begun at Ichang in December, 1909. (3) Tientsin to Pukow, 675 miles; about 290 miles of northern and 110 of southern section completed. (4) Kiangsi Railway, Kiukiang to Nanchang, 82; about 20 miles open from Kinkiang. (5) Shanghai-Hangchow-Ningpo Railway, 218; open to Hangchow, 118. (6) Nganhui Railway, Wulu to Kuangte-chow, 150. (7) Fukien Railway, Changchow to Amoy, 33; 10 miles completed. (8) Sunning Railway, Kongyik to Samkaphoi, 55; 40 miles south from Kongyik open.

Disturbed political conditions in China naturally interfered with the railway developments in progress in that empire. The Peking-Kalgan line was being extended and the missing links of the Peking-Shanghai connection formed by the Tsinan and Tehchow, and the Yenchowfu and Soochow, were under construction. The line from Peking to Canton had been completed as far as Hankow, and small portions of the remainder were in course of construction, namely, from Wuchang, opposite Hankow on the Yangtse Kiang to the south; from Changsha to the south, an isolated section, and from Pachiang north to Shiuchow. A small amount of work was done on the great projected line from Hankow west to Chengtu, this being in the neighborhood of Ichang. Work was also done on the Changchun-Kiri line near Amoy; and on the section from Kiukiang to Nanchang of the line it was planned to extend from the former city to the ports of Swatow and Canton.

Progress was being made on the conversion of the South Manchurian Railway from 3 feet 6 inches gauge to 4 feet 8½ inches standard gauge, and the improvement of the line by reconstructing many of the gradients and curves. This line extends between Antung and Mukden, and work has been completed on the two end sections.

Telegraphs (1909): miles of line, 26,413; of wire, 43,011; offices, 528. Post offices (1910), 5357. The postal service has been much developed in the last few years; it was formerly a branch of the customs, but in 1911 was transferred to the ministry of communications and a postmaster-general was appointed.

FINANCE. No comprehensive statements of revenue and expenditure are officially published, but it is clear that in recent years the imperial government has been financially hard pressed. Except the imperial maritime customs, most of the revenue has been collected by provincial agents, and probably a considerable part of it has remained with the collectors. A 1901 estimate placed the revenue and expenditure at 88,200,000 and 101,120,000 hk. tls., respectively. (For the value of the haikwan tael, see first paragraph of section *Commerce*, above). A 1908 estimate placed the revenue at 105,000,000 hk. tls. The budget for 1911 showed an estimated revenue of 297,000,000 and an estimated expenditure of 351,000,000 hk. tls. Receipts from customs: 1907, 33,861,346 hk. tls.; 1908, 32,901,895; 1909, 35,939,917; 1910, 35,571,879 (of which 28,609,277 from foreign and 6,872,602 from internal commerce). The 1910 customs comprehended import duties, 14,087,232 hk. tls.; export duties, 13,128,635; coasting trade

duties, 2,123,798; tonnage, 1,329,024; transit, 2,064,167; opium likin, 2,839,023. The debt, as reported for January 1, 1911, is as follows: £59,892,174 (\$291,465,265); 377,783,388 francs (\$72,912,199); 12,470,000 yen (\$6,200,006); \$2,220,000; 3,270,000 Shanghai taels (\$1,975,080); 421,499,998 hk. tls. (\$283,669,498); total: \$658,442,043. (The Shanghai tael is converted at 60.4 cents, and the haikwan tael at 67.3, their value January 1, 1911.)

NAVY. Since 1909 plans for naval reform have been developing, but up to the end of 1911 no definite reorganization of the navy had been made. The fleet in 1911 was reported to include four cruisers (built in 1897 and 1898), 1 of 4300 tons and 3 of about 3000 tons each; various miscellaneous vessels of little fighting value, including 8 old cruisers; several old torpedo boats, dispatch boats, etc.; 5 modern torpedo boats; 4 torpedo boats for river service; and some 23 modern river gunboats. Two small Chinese cruisers of 2400 tons each, designed for use as training ships, were launched in England in 1911, the *Ying Swei* on July 14 and the *Chao Ho* on October 23.

ARMY. Under the disturbing conditions existing in China in 1911, it is somewhat difficult to distinguish between the conditions realized and the schemes proposed for the reorganization of the Chinese army, which was in progress at the beginning of the year 1911 under the law of military reorganization promulgated in January, 1905. There were, moreover, various changes in the war ministry, which in 1911 was remodeled and nine bureaus were constituted. The general plan provided for a national Chinese army instead of the more or less unorganized and separated forces of the separate provincial viceroys. The plan in force contemplated an active army with a first and second reserve of the Liou-kium or imperial land forces. This active army was organized on a basis of divisions in which the armies of the service were included and the plan was to divide the empire into five large military districts. With the 37 divisions contemplated in the scheme of organization, which was intended to be finished by 1913, 28,000 officers and 430,000 men, of which 380,000 were combatants, would be enrolled. Up to 1911 many of these divisions were merely skeleton organizations, and others had not been organized, but normally each would consist of about 12,000 men and comprise two brigades of infantry, each of two or three battalions to a regiment, a regiment of cavalry, a regiment of artillery, battalions of engineers and service troops in addition to the machine gun and aeronautical sections. It was provided to maintain the cavalry and the special troops on a war basis, but the infantry was to be maintained at half-strength and increased from the first reserve in time of war. The military spirit of the Chinese was being aroused, and the reserve service had become quite popular. It was thought that the five Yangtse provinces would each contribute 10,000 fighting men to the new organization. In the early part of the year there were manoeuvres and General Na-tsing, with a staff of twenty-four officers, carried on an inspection of the regular forces in Manchuria, which comprised 35,000 men with 14 guns and 42 militia guns. While much of the military material is German, Japanese officers are taking a leading part in the training of the army.

The regular army, Liou-kium, was in process of active development during the year 1911.

Under normal conditions at the end of the year 1912, there should have been organized thirty-six divisions and one division of the guard. The force at the beginning of 1911 comprised thirteen divisions, whose organization was nearly completed, and 19 mixed brigades, or a total of 260 battalions of infantry, 58 squadrons of cavalry, 171 batteries, 72 companies of engineers, 66 train companies and 169 machine gun companies. The theoretical effective of these different organizations would be about 220,000 men. The real strength should be near 175,000 men. In 1911 the force was increased over previous years by about 32,000 men. This increase was principally on the frontier districts as follows: Manchuria (23rd division formed at Kirin, a mixed brigade), Yunnan (the completed 19th division), Turkestan (35th mixed brigade), Koang-tong (reorganization of the mixed brigade). These new companies were created by direct recruiting, by changes from the Siun-fang-toei, and by the incorporation of the best element from the old disbanded troops.

Antedating the more serious disturbances referred to below under *History* were mutinies at Koang-tong in the spring of the year, recalling those of February, 1910, in the same province, while other mutinies occurred at Koang-si and elsewhere. It was apparent at the beginning of the year that the army was largely under revolutionary influences.

Of the troops organized on the old basis, the former police, Siun-fang-toei, still existed in the majority of the provinces in variable numbers, in some places furnishing elements of the Liou-kiun, while in others it had been augmented by the best soldiers of the disbanded Louyings or remains of the old army of the Green Banner. Accordingly, the effective total of the Siun-fang-toei was about 200,000 men. This division of the Chinese army, in addition to playing the part of police, was designed to serve as supply troops awaiting the organization of the reserve. The Lou-yings were disappearing gradually, by disbandment, or absorption in the companies of the Siun-fang-toei or the Liou-kiun. The Pa-ki, the remaining contingents of the Manchurian banner troops, were either disbanded, or given modern training in the expectation of being included in the Liou-kiun.

The modern police (Siun-king-kiun) had been organized in the provinces. Well recruited and adequately drilled, it was considered that they were capable of rendering good service in the localities where they were organized. This force was under the control of the minister of the interior, and had an effective strength of about 158,000, or an increase of 68,000 over 1910. The organization is centralized in each province. In addition there was a new police of about 3000.

The organization of the Chinese military reserve as called for in the military scheme at the beginning of the year was more on a theoretical than a practical basis, and in only a few provinces had the matter been undertaken seriously. The reorganization of the various ordnance factories and arsenals was being undertaken, as this part of the army organization was in its infancy and China was forced to depend on outside assistance for military supplies of every kind. In fact, it was doubted by many authorities at the beginning of the year whether any large amount of munitions of war was available. The complete railway system as regards military organization and use was in an

embryonic state. The Chinese government, by decrees of May 9 and 22, 1911, had decided on the nationalization of all lines of railways existing or under formation, and the discontent arising from this measure was the principal cause of the trouble in Szechuen in September. (See above, *Communications*). The Chinese government in its military as well, as other operations had in view the substitution of central power for provincial responsibility, which had given only bad or indifferent results. The new war administration, under the control of the minister of war, Yin-Tchang, had actively forced this measure in order to achieve a complete system able to cooperate effectively in national defense, and its outcome after the revolution was a most interesting problem.

GOVERNMENT. A review of the recent movement toward constitutional government and of the revolutionary changes in 1911 will be found below under *History*.

The cabinet of Yuan Shih-Kai, who became prime minister in November, included the following members: Liang Tun Yen, foreign affairs; Yen Su, finance; Admiral Sah Chen Ping, war and marine; Chang Chien, agriculture, public works, and commerce; Hsen Chia Pen, justice; Tang Ching Chung, education; Yang Shi Chi, communications.

The rule of the Manchu dynasty in China dates from 1644, and the emperor Pu-yi was the tenth of the line. The emperor Tsai-t'ien (reign title, Kuang-hsü) died August 14, 1908. He was succeeded on November 14 following by his brother's son Pu-yi (reign title Hsin-t'ung), who was born February 11, 1906. The emperor's father, Prince Chun, was regent.

HISTORY

INTRODUCTION. For five years the constitutional movement which culminated in the revolution of 1911 had made steady progress. In 1905 commissioners were appointed to visit Germany, Great Britain, and Japan and study their constitutional systems and in 1906 a committee was appointed to consider their report. On September 20, 1907, an imperial decree was issued outlining a plan for a national assembly. On July 22, 1908, another decree provided for provincial assemblies to serve as a basis for a future parliament, and on August 27, 1908, the imperial government definitely outlined a constitution and promised to introduce a parliamentary system within nine years. Two important steps toward constitutional government were taken in 1910 in the organization of the new provincial assemblies or councils and of the new Provisional National Assembly or Senate, which was to form the nucleus of the House of Parliament. The provincial councils were consultative bodies, whose members were elected by voters having a property qualification or diplomas. Of these twenty-two councils only four drew much public attention to their activities in 1910, namely, those of Pechili, in which Peking is situated, Che-kiang and the two Hu provinces. The Pechili council was the most outspoken in its statement of grievances and the most discussed in the press. It was especially vigorous in supporting the demands for a national parliament. The other councils looked to it for guidance and followed its lead. They too joined in the general demand for a national parliament and sent delegates to Peking to press the matter. The Hupeh council was especially active in

opposing the government policy of foreign loans for railroads and it became involved in a quarrel with its viceroy. Thus it appeared that despite the limited powers of the provincial councils, they were far from showing the docility that had been expected of them, but had in fact constituted themselves organs of public opinion. The National Assembly or Senate was called together on October 3, 1910. It consisted of 195 members, of whom about one-half belonged to the privileged classes, princes of the imperial house, members of the nobility and representatives of the wealthy classes, all of whom were named by the sovereign, and the remaining half were delegates from the provincial councils. The new body soon showed itself responsive to the popular demand for the early establishment of a national parliament and like the provincial bodies it disappointed the hope of the government that it would be loyal and docile. In spite of its restricted powers, the right of free speech gave the more progressive senators an opportunity to urge reforms. They persuaded the Senate that the only way in which China could emerge from her difficulties and present a strong front against the foreigner was through a government based upon the popular will. They urged the hastening of constitutional government. The majority accepted these ideas, but it was soon seen that the Senate's deliberations had no result. It therefore began to work for the establishment of a cabinet of responsible ministers. This the court refused, but the Senate continued to insist down to the close of the session of January, 1911.

Meanwhile the constitutional movement throughout the country had steadily gained force. A petition for the introduction of constitutional government was presented in January, 1910, but failed. Thereupon an active campaign began to rally the people on behalf of the immediate summoning of the National Assembly. The delegates who had presented the petition enlisted the sympathies of all the important organizations, including groups of students, societies for political study, and mercantile association. A new journal was established to advocate the cause. Another petition which was signed by influential individuals and societies was presented in June, but refused. The progressives persisted, however, and soon a third petition was prepared. Stormy meetings were held in Peking and as a sign of patriotic fervor the participants cut off their fingers. After one of these meetings, its members, followed by a large crowd, went to the house of delegates in Peking and blamed the members for cowardice. Two leaders of the students mutilated themselves in the presence of the delegates, who finally were carried away by excitement and went to the palace of the regent with the bloodstained petition. Finally the minister of the interior agreed to present the petition for them. The court, seeing that it faced the danger of a revolution, gave way, but to save its face, left the decision with the Senate. Crowds rushed into the Senate and the petition was presented to the president by the regent. The president approved, but did not fix the date for the summoning of Parliament. The court announced that the preparations for the National Assembly would be completed in 1913, this delay being necessary for the establishment of an electoral system. The reformers were by no means satisfied with this result and continued the agitation for an earlier

date. Meanwhile the actual government, which consisted of the regent and the council of the empire, seemed utterly unable to resist the wave of reform. This was the situation at the beginning of 1911.

CREATION OF A RESPONSIBLE MINISTRY. The constitutional programme of the Chinese National Assembly, as revised by the imperial authorities, included the issue of regulations during the current Chinese year for a cabinet and for an advisory council, consisting of the present grand council under the presidency of Prince Ching. By the end of 1911 these changes were to be completed and new criminal, civil, and commercial laws issued; also a privy council was to be established. In the following year the budget was to be submitted and regulations issued for the elections, and in 1913 Parliament would be organized. In its amended form this programme was by no means satisfactory to the assembly, which sought more rapid change and demanded the immediate creation of a cabinet. Yielding to its constant pressure the throne on May 8, 1911, issued an imperial edict abolishing the grand council, grand secretariat and commission of constitutional reform and creating instead, under Prince Ching as prime minister, a general staff under two Manchu princes, and a privy council under the chancellor. The new offices were filled chiefly by Manchus.

OUTBREAK OF THE REVOLUTION. Meanwhile the revolutionary movement had been steadily gaining ground. It was quietly and ably organized and soon won the support of the intelligent and well-to-do classes. In the neighborhood of Canton it was especially active and many seditious books and pamphlets were circulated there. In September there were threats of an uprising in the province of Szechuen, where the policy of the government in the railway matter had aroused opposition. (See paragraphs above on *Communications and Army*.) But the actual outbreak occurred at Wuchang in connection with a mutiny of the troops. For some time past the troops at Wuchang had been reported to be in a dangerous mood, and on October 11, rioting broke out on account of the execution of some of the mutineers. The viceroy had to take refuge on a Chinese gunboat. Several foreign gunboats were already on the scene and the British prepared to send another one. At the same time it was learned that Hankow had become a revolutionary centre, and it was said that bombs were being manufactured in the Russian concession. The rebels declared that they harbored no hostility to the Europeans and would rigidly suppress any attempt to injure foreigners or to interfere with commerce. From the first the outbreak was evidently anti-Manchu in character and directed against the government. Soon afterwards came the news that Wuchang, Hankow, and Hanyang were in the hands of the revolutionists. The rebels issued a proclamation declaring that the Manchu dynasty would be overthrown and the rights of the Chinese revived. It added that anyone interfering with foreigners or with commerce would be put to death. It was reported by a missionary early in October that about 10,000 persons had lost their lives in the recent disturbances, and that thousands of persons in the districts around Cheng-tu were homeless.

DESOLUTORY FIGHTING IN OCTOBER. It was

soon apparent that the revolt was the most formidable uprising since the famous Taiping rebellion. It appeared that the great mass of educated Chinese in Peking were heartily in sympathy with the revolutionaries and had little regard for the corrupt Manchu dynasty. The leaders of the movement were praised for their foresight and power of organization. Among the military leaders were Brigadier-General Li Yuan-hung, who had risen from the ranks, and Huang Hsin, who had organized an attempted uprising at Canton. General Yin-chang, the minister of war, was dispatched with troops for the southern provinces on October 18. Meanwhile Hankow was occupied by the revolutionists without opposition, and it was reported that Chang-Sha, capital of Hunan, had risen. The foreign residents in Hankow and the neighboring cities were called in and took up their residence at the Hankow concessions. On October 13, it was announced that a reform government had been proclaimed at Hankow. The rebel leaders notified the consuls that they would respect the treaties and protect foreigners, provided that foreign powers did not aid the Manchus. Public sympathy was expressed with the aims of the rebels both among the Chinese and among the foreign residents. A massacre of Manchus was reported on October 13. And fast as government troops arrived they were met by revolutionaries who tried to persuade them to join the movement, and when they refused they were allowed to withdraw beyond the city limits. The leaders of the revolt declared that their object was to make China a republic and secure an honest administration of the government. An indecisive engagement occurred near Hankow on October 18. An important success of the rebels at the outset was the seizure of the provincial treasury and the arsenal of Hanyang, thus providing themselves with arms and ammunition. The weakness of their position consisted chiefly in the fact that they could be attacked readily by means of the Peking-Hankow Railway. The government plan apparently was to rush troops down to the scene of the revolt before it had got much headway. In the first encounter with the imperial troops, the Wuchang rebels were not successful, and as it was believed that 20,000 drilled troops could be brought down from Peking, and that 10,000 more were under orders from Tientsin, and an equal number from the Manchuria garrisons, the rebel cause early in October looked somewhat doubtful. Later, however, it was learned that Ichang and Chang-sha had passed peacefully into the hands of the rebels, along with other cities in the Yangtse valley and that other great cities were only waiting orders to follow suit. Between October 15 and October 20, the revolutionary forces were successful, but the imperialist troops made little resistance and the fighting was of slight consequence. The expeditionary force from Peking about 20,000 strong had reached a point about eighty-five miles from Hankow by October 22.

THE RECALL OF YUAN SHIH-KAI. An imperial edict on October 15 curtly ordering Yuan Shih-Kai to assume the vicereignty of Hunan and Hupeh and join the minister of war in putting down the revolt brought a doubtfully worded reply from that official, who excused his delay on the ground of ill health. It will be remembered in 1909 when the unexpected order came

to him to retire, it assigned the reason that he had received an injury to his foot and purported to be an act of clemency in relieving him from his duties. It was suspected generally that there was no basis for this assumption of illness and it seemed probable now that he would not recover his health unless he received full powers from the government to make terms with the revolutionaries. On October 23, it was learned that the imperialists had retreated further on the railway. The National Assembly was opened at Peking on October 22. Affairs in the capital were in great confusion and the financial condition was desperate. Many Chinese and Manchus of the better classes were leaving Peking and sending their treasure to places of safety in the foreign concessions. The ministry of finance endeavored to obtain a loan from the British, French, German, and American banks, but the latter demanded to know for what purpose the money would be used and required, before recommending its acceptance, that full power should be accorded to Yuan Shih-Kai in dealing with the situation. Yuan Shih-Kai was completely successful in imposing his own terms upon the government, whose position was hopelessly weak. The National Assembly having impeached the minister of communications, Sheng Hsuan-huai, who had long been a faithful agent of the government and was the promotor of the policy of nationalizing the railways and currency reform, the government issued an edict (October 26) declaring that he had been false to his trust and blundering in his policy. It announced that he was cashiered and would never be employed again. Sheng had for many years been Yuan Shih-Kai's political rival. Another edict appointed an imperial commission with full power over the Yangtse naval forces and the troops operating in the Hupeh province. Yuan Shih-Kai was to have complete authority in order to put down the revolution, and the ministry of war and the general staff were not to have any control. He was made virtually a military dictator, and Yin Chang, the Manchu minister of war, was recalled to Peking.

THE THRONE'S HUMILIATION. Another decree on October 30, appealed to the mercy of the people. The throne took upon itself the blame for unwise choice of ministers, for unconstitutional acts and misgovernment, saying that these things had led to the rebellion. It promised to give proper force to the constitution and establish reform, based on the people's will. Later, Yuan Shih-kai was appointed prime minister, and Prince Ching became president of the privy council. No Chinese subject ever before had received such extended powers as Yuan Shih-Kai. The Emperor's apology is so remarkable a document that it is worth quoting here in full:

"I have reigned for three years and have always acted conscientiously in the interests of the people, but I have not employed men properly, not having political skill. I have employed too many nobles in political positions, which contravenes constitutionalism. On railway matters some one whom I trusted fooled me, and thus public opinion was opposed. When I urge reform the officials and gentry seize the opportunity to embezzle. When old laws are abolished high officials serve their own ends. Much of the people's money has been taken, but nothing to benefit the people has been achieved.

On several occasions edicts have promulgated laws, but none of them have been obeyed. People are grumbling, yet I do not know; disasters loom ahead, but I do not see.

"The Szechuen trouble first occurred; the Wuchang rebellion followed; now alarming reports come from Shensi and Honan. In Canton and Kiangsi riots appear. The whole empire is seething. The minds of the people are perturbed. The spirits of our nine late emperors are unable properly to enjoy sacrifices, while it is feared the people will suffer grievously.

"All these are my own fault, and hereby I announce to the world that I swear to reform, and, with our soldiers and people, to carry out the constitution faithfully, modifying legislation, developing the interests of the people, and abolishing their hardships—all in accordance with the wishes and interests of the people. Old laws that are unsuitable will be abolished. The union of Manchus and Chinese, mentioned by the late emperor, I shall carry out. The Hupeh and Hunan grievances, though precipitated by the soldiers, were caused by Jui-cheng. I only blame myself because I mistakenly appreciated and trusted him.

"However, now finances and diplomacy have reached bedrock. Even if all unite, I still fear falling, but if the empire's subjects do not regard and do not honor fate and are easily misled by outlaws, then the future of China is unthinkable. I am most anxious day and night. My only hope is that my subjects will thoroughly understand."

THE REVOLUTIONARY DEMANDS. The demands of the revolutionary troops were the perpetuation of the Ta-ching dynasty; the calling of Parliament this year; the drafting of a constitution by Parliament which shall not require approval by the throne; the initiation of future constitutional changes by Parliament and not by the Throne; the naval and military forces to be under Parliament's control when serving within the empire and under the emperor's control when employed elsewhere; the throne not to pronounce sentences of death and all imprisonments to follow due process of law; amnesty to all political offenders; Parliament to select the premier and appoint the ministers of state; all treaties affecting national interests, adding to the people's burdens to be approved by Parliament before receiving the emperor's signature; budgets to be approved by Parliament before going into effect; election of members of Parliament to be in accordance with certain rules determining their qualifications; methods of calling Parliament and establishing constitutional government, and the settlement of important questions to be subject to the approval of the army.

THE GRANT OF CONSTITUTIONAL GOVERNMENT. The abasement of the Throne was complete and was marked by the issue of most humiliating edicts, praising the insubordinate generals and taking the revolutionists into the service of the state. The national assembly at Peking had formulated by the beginning of November nineteen fundamental principles of government, in most respects the same as those of the revolutionaries as outlined above. On November 3 the throne issued an edict unreservedly accepting them. Their text was as follows:

1. The Ta-ching Dynasty shall reign for ever.
2. The person of the emperor shall be inviolable.

3. The power of the emperor shall be limited by a constitution.

4. The order of the succession shall be prescribed in the constitution.

5. The constitution shall be drawn up and adopted by the Sze-cheng-yuan and promulgated by the emperor.

6. The power of amending the constitution belongs to Parliament.

7. The members of the upper house shall be elected by the people from among those particularly eligible for the position.

8. Parliament shall elect and the emperor shall appoint the premier, who will recommend the other members of the cabinet, these also being appointed by the emperor. The imperial princes shall be eligible as premier, cabinet ministers, or administrative heads of provinces.

9. If the premier, on being impeached by Parliament, does not dissolve Parliament, he must resign, but one cabinet shall not be allowed to dissolve Parliament more than once.

10. The emperor shall assume direct control of the army and navy, but when that power is used with regard to internal affairs he must observe special conditions to be decided by Parliament; otherwise he is prohibited from exercising such power.

11. Imperial decrees cannot be made to replace the law except in the event of immediate necessity, in which case decrees in the nature of a law may be issued in accordance with special conditions, but only when they are in connection with the execution of a law or what has by law been delegated.

12. International treaties shall not be concluded without the consent of Parliament, but the conclusion of peace or a declaration of war may be made by the emperor; if Parliament is not sitting, the approval of Parliament to be obtained afterwards.

13. Ordinances in connection with the administration shall be settled by acts of Parliament.

14. In case the budget fails to receive the approval of Parliament, the government cannot act upon the previous year's budget, nor may items of expenditure not provided for in the budget be appended to it. Further, the government shall not be allowed to adopt extraordinary financial measures outside the budget.

15. Parliament shall fix the expenses of the imperial household and any increase or decrease therein.

16. Regulations in connection with the imperial family must not conflict with the constitution.

17. The two Houses shall establish the machinery of an administrative court.

18. The emperor shall promulgate the decisions of Parliament.

19. The Sze-cheng-yuan shall act upon articles 8, 9, 10, 12, 13, 14, 15, and 18 until the opening of parliament.

SPREAD OF THE REVOLT.—The plan of Yuan Shih-Kai was to ascertain the views of the revolutionaries and to frame a compromise on the basis of a constitutional monarchy, responsible to the ministry and Parliament. The throne having accepted in its edict of November 3 the assembly's draft of the principles of the constitution, issued another edict on November 5 enjoining an immediate summoning of Parliament as soon as the rules had been drawn up and its members elected. Meanwhile Shanghai, which

had been one of the chief centres of the agitation, went over peacefully to the side of the revolutionists, and leading revolutionists, including Wu Ting-fang, former minister to the United States, were appointed to high official positions there. There were signs of discontent with the Peking National Assembly. The border provinces protested that it had exceeded its powers, and it was feared that compromise might fail. The difficulty was increased by the assassination by the Manchus of General Wu Lu-ch'en, who had been made governor of the Shansi province and had made terms with the mutinous troops. During the first week in November all the region around Shanghai was in the hands of the revolutionists and many of their leaders were saying that things had gone too far to admit of any concessions to the throne, and that the National Assembly did not represent the people. By the first week in November the revolt had spread throughout central China.

YUAN-SHIH-KAI. On November 8 the National Assembly elected Yuan-Shih-Kai premier by a vote of 78 out of 87, and he arrived at Peking with a large body of troops on November 13, having met several revolutionary leaders on the way and discussed with them measures of pacification. An edict was immediately issued extending his powers, and practically placing him in command of the entire northern army, including the imperial guards and the forces about Peking. His presence had a quieting effect at first, but the difficulties before him were very serious. He had first to form a cabinet and appoint important officials. Then came the task of reconciling the revolutionists, who were insisting on the abdication of the emperor and the establishment of a federal republic, to the plan for a limited monarchy approved by the more moderate party. The republican movement seemed steadily to be gaining ground. Hankow and Nanking had been recaptured by the imperialists on November 1. At the latter city the Manchus massacred large numbers of the suspected revolutionists and November 10 the rebels were besieging it and its fall seemed certain. Meanwhile Hankow had been nearly destroyed by fire. On November 8 Canton declared itself a republic and elected a temporary provincial president and vice-president. The rebel provinces were planning to send delegates to Shanghai to form a provisional republican government. The revolutionary leaders, Wu-Ting-fang and Wen Tsung-pao, of whom the former had been designated foreign minister for the proposed republic, issued an appeal to the world at large to unite with them in urging the prince regent to abdicate and bring the strife to an end. The memorial recited the vices of the Manchu régime and pronounced its cause hopeless, fourteen provinces having already declared their independence. Yuan-Shih-Kai, however, continued to advocate the retention of the Manchu dynasty as a limited monarchy, alleging the danger of dissension and partition under a federal republic and declaring his belief that a great majority of the people were conservative and content with the old régime. On November 16 he announced the members of his cabinet. Of the ten ministers only one was a Manchu. He offered the portfolio of commerce and industry to one of the revolutionary leaders. Toward the end of November the situation seemed more favorable to the moderate government led by Yuan Shih-Kai.

It was announced toward the close of the month that Wuchang, the stronghold of the revolutionists, had capitulated and later came the news that the revolutionary leader, Li Yuan-hung, was willing to accept the terms proposed by Yuan-Shih-kai. On November 29 the latter issued an edict reporting the recapture of Han-yang and announcing that an amnesty would be granted and that he was ready to send delegates to a national conference in Shanghai with delegates from all the provinces. On the same day the revolutionists recaptured Nanking.

PEACE NEGOTIATIONS. At the end of November both sides showed a desire to reach a compromise. The revolutionary general, Li Yuan-hung, submitted to Yuan Shih-kai, through the British minister and consul, a request for a three days' truce. This was granted (November 30) and on December 4, Yuan Shih-kai granted a request for its extension for fifteen days pending a discussion of plans for peace. Delegates under Tang Shao-yi as chief envoy were appointed to confer at Shanghai with delegates from the revolutionary provinces and the first meeting was held there on December 18. Meanwhile on December 6 an edict was issued announcing the resignation of the regent. The consuls of the great powers chiefly interested in China had been active in bringing about the peace negotiations. The United States government took the initiative in the matter, addressing an additional note to the six great powers, asking their opinion as to the best means of protecting the interests of foreigners during the revolutionary disturbances, and suggesting that joint action would be prudent as removing the temptation of any one nation to take advantage of the situation for its own selfish interests. Out of this came a concerted attempt of the powers to end the conflict. On the meeting of the peace envoys, the main question was between a limited monarchy under the Manchu dynasty and a republic. Leading revolutionaries showed a willingness to accept a limited monarchy if the Manchus were removed. It was arranged that on December 20 the consuls of the United States, Great Britain, Japan, France, Germany, and Russia should address an identical note to Tang Shao-yi, the imperialist government's representative, and Wu Ting-fang, foreign minister of the revolutionary provisional government. The course of the foreign powers was carefully planned to avoid the appearance of a forcible intervention. It was ostensibly a mere tender of good offices, though it implied that if conditions arose which endangered the foreign residents it might be necessary for their governments to take active measures.

A few days later Yuan-Shih-Kai declared that the people must pronounce upon the form of government for China and suggested that a national convention should be summoned to decide what the form should be. Upon the acceptance of this proposal the premier submitted it to the throne on December 28. He strongly urged its acceptance, and the throne finally consented. An edict was thereupon issued declaring that the princes and the members of the imperial clan agreed to let the cabinet arrange regulations for a national conference and for an extension of the armistice. The cabinet was instructed to inform the peace delegates that the throne would abide by the decision of a representative convention as to the form of government. Meanwhile, Yuan-Shih-Kai had



Photograph by Paul Thompson, N. Y.

DOCTOR SUN-YAT-SEN

A Leader of the Revolutionary Movement



Photograph by Paul Thompson, N. Y.

GENERAL YUAN-SHI-KAI

Prime Minister

TWO PROMINENT FIGURES IN THE CHINESE REVOLUTION OF 1911

been making vain attempts to secure a loan of \$10,000,000 for the payment of troops in order to retain control of the northern provinces. It was expected at the close of the year that the imperial family would soon leave Peking. At the end of December, Sun-Yat-Sen (q. v.), long a prominent figure in the revolutionary movement, though he had not taken part in the hostilities, was elected president by the provisional republican convention which met at Nanking. He promised to drive the Manchus from the throne, to restore peace, to establish a government on a popular basis, and then to resign and leave the choice of his successor to popular election.

MONGOLIA AND TURKESTAN. In the latter part of December it was announced that Mongolia had declared its independence, and that at the same time Turkestan would cut loose from the authority of China. It was also reported that the Kutuktu, the religious head of the Mongol Buddhists, was proclaimed khan (December 27). During the past ten years China had attempted to bring Mongolia, which had previously possessed a large measure of autonomy, into closer dependence upon the imperial government. A movement for independence had existed there for some time and was largely religious in character. Charges of China's incapacity and corruption were made by the natives, who accused the ambans or governors of plundering them and enriching themselves at their expense. The news of Mongolian independence was followed immediately (December 28) by a request on the part of Russia that China should at once resume control of Mongolia. In the distracted condition of the empire, the Chinese government replied that it was unable to do this. It appointed, however, commissioners to repair to Urga, the chief city of Mongolia, for the purpose of persuading the natives to return to their allegiance to the empire. There was much speculation as to the outcome of the Russian demand, which was held to mean that Russia would annex Mongolia and Turkestan or would at least establish a protectorate over the former country. The Russian press, however, declared that the proper course for the government to pursue was not annexation, but the guarantee of the independence and autonomy of Mongolia. It was believed that the old order in Mongolia could not be restored. The failure of Yuan Shih-Kai's efforts on behalf of the Manchu dynasty furnished the occasion for Mongolian independence.

THE PLAGUE. During the first four months of 1911 the pneumonic plague spread with great virulence to many parts of the empire. Its origin was attributed by some to the marmot, a rodent found in great numbers through Manchuria and valued for its fur. Hunters took the plague-stricken animals and became infected. In October and November, Manchouli, the chief centre of the trade in the marmot, becomes overcrowded each year. The first case of the epidemic broke out in the neighborhood of that city in the autumn of 1910. Deaths followed in great rapidity and finally in the first week of November it spread to Harbin, where the chief Chinese officials showed themselves negligent, and even opposed the taking of medical measures; but the Russian authorities were active, and soon a number of physicians were working with energy to stay the progress of the disease. It continued to increase, however, and in Harbin the deaths rose in January to 160 a day. Dur-

ing that month also it appeared in different parts of the empire. Manchurian refugees fled to the south and the plague was spreading toward Hankow. At Harbin, in February, 1700 deaths were reported to have occurred since its outbreak in the Russian zone alone. By the middle of that month it had crept over the whole of northern Manchuria and was reported in the neighborhood of Astrakhan in Russia. Toward the end of February there were rumors of its spread to distant parts of Europe and fears of its becoming epidemic in the west, but in the following month it began to decline and by the middle of April it had died out. The death roll was estimated at 60,000. It was compared to the virulent pestilences of the Middle Ages. In the Chinese quarters of Harbin, with a population of 35,000, including the floating element, the deaths were placed at 5138. The mortality, however, was far inferior to that of the bubonic plague in India, with which, indeed, it could not be compared in point of destructiveness. An international conference met at Mukden in April at the invitation of the Chinese government to investigate its cause and suggest means of prevention.

OPIMUM TRADE. At the end of 1907 an agreement between the English government and China provided for a reduction of the exports of opium from India at the rate of 5100 chests a year, beginning January 1, 1908, providing China reduced native production at the same rate. This arrangement was renewed at the end of 1910 and was to continue until the trade, which was estimated at 51,000 chests a year, had expired. China, however, wished to terminate the opium trade before the end of the period and many believed it could be brought to an end within a year or two. The campaign carried on in China against the use of opium caused a reduction of the imports to a figure considerably below that anticipated and there was no longer any doubt as to the sincerity of the government in dealing with the question. Negotiations were therefore begun in the spring of 1911 for the shortening of the period, and the exclusion of opium as an article of trade by the denunciation of the treaty of Tientsin. China proposed that England should end the traffic as soon as China had suppressed entirely the native production. A serious difficulty lay in the disposal of the accumulated stock valued at nearly £4,000,000, and since this came in under existing treaty rights, purchased by the Indian government, the latter must be held responsible if these rights were abrogated. China proposed the compulsory sale of the accumulated stock within six months after the formation of the new agreement. Against this, however, the opium merchants protested as certain to force down the price. The main obstacle to the agreement was that the Indian government had to consider the interests of Indian subjects and save them, so far as possible, from loss, whereas the Chinese government was intent upon its policy of suppressing opium consumption. However, an arrangement was reached after negotiations, and on May 8, 1911, a new opium agreement between the British and Chinese governments was signed. This provided that since China had adopted a rigorous policy for prohibiting the production and trade of opium, the British government agrees that the export from India shall cease in less than seven years if proof is given that the production of native opium shall

diminish annually in the same proportion that the annual Indian export diminishes. Moreover, no Indian opium is to be conveyed to any province of China which has suppressed the cultivation and import of native opium. In June the British foreign office published the report of a government expert who had made a careful study of opium production on the spot. This declared the opinion that poppy cultivation had been suppressed in the provinces of Shansi and Szechuen, and cut down by about 75 per cent. in Yunnan. He estimated the reduction in Shansi at possibly 30 per cent. and in Kansu at something less than 25 per cent. In July, 1911, China gave notice that after December 1, 1911, the entry of Turkish and Persian opium would be forbidden. In the confusion of the revolution, during the closing months of the year, the anti-opium regulations were disregarded, especially in Szechuen, where increased cultivation was reported, and in Yunnan where, it was said, the revolutionary government had officially sanctioned the poppy planting.

The Opium Conference which had been appointed at the suggestion of the United States to be held at The Hague on July 1, 1911, was deferred to December 1.

RUSSIA AND CHINA. Difficulties in renewing the treaty of 1881 led to serious friction between Russia and China early in the year. On February 19 a Russian note was presented at Peking, demanding the right to impose import duties within a certain distance of the frontier zone, the guarantee of extra territorial jurisdiction over Russian subjects except in civil cases, the trial of legal suits between Russians and Chinese by mixed tribunals, freedom of trade, travel and residence for Russian subjects in Mongolia and on both slopes of the Celestial Mountains north of the Great Wall, the appointment of consuls at Kobdo, Hami, and Hucheng, proper facilities for consuls and the right of Russians to acquire land where Russia is entitled to have consuls. The last five of these points were based on the treaty of 1881. China on her part claimed indemnity for the expulsion of Chinese inhabitants from towns on the east of Amur and for destruction of property during the Russo-Japanese War. After some further negotiations Russia dispatched a note peremptory in tone and virtually an ultimatum. This demanded unequivocal consent on the six points above mentioned. On March 28 it was announced that the Russian government had received a note from China which it regarded as a full and satisfactory acceptance of Russia's interpretation of the treaty of 1881 and as an evidence of friendly feeling.

OTHER EVENTS. The negotiations for an American loan begun in the autumn of 1910 resulted in an agreement on April 15, 1911, whereby banking representatives of the four powers, United States, Great Britain, Germany, and France, subscribed to a loan of \$50,000,000 for the reform of the currency and for the industrial development of Manchuria. Mr. Knox, the American secretary of state, declared the object of the United States was to enlist the interests of the powers in the maintenance of the integrity of the Chinese empire. Another important loan was consummated on May 20 by the signature of contract between the groups of foreign financiers and the minister of communications. This was the contract in which the

American group secured an equal participation with the British, German, and French groups as a result of the negotiations of 1910 in a loan of \$30,000,000 secured on certain specific revenues of Hupeh and Hunan. It provided for a railway line 600 miles long from Wuchang, the capital of Hupeh, through Changsha, capital of Hunan, to the southern border of that province, under British engineers; the building of 400 miles in Hupeh from Ichang to Kuanshuei, under German engineers; and of 200 miles in Hupeh from Ichang to the border of Szechuen, under American engineers. On May 9 arrangements were made on the transfer of the post office to the ministry of communications. Since the post office was established in 1900, there had been a rapid advance in its development under the efficient management of Theophile Piry, whose services were retained under the new arrangement. The death of Sir Robert Hart (q. v.) on September 21 was a severe loss to the Chinese service. The plans for a modern university in central China, furthered by committees representing universities in Great Britain, the United States, and Canada, were discussed at meetings in England and America, and made progress during the year.

CHINESE IMMIGRATION. See IMMIGRATION AND EMIGRATION.

CHING, Prince. See CHINA.

CHOLERA. The United States was threatened with a cholera epidemic during 1911, both from the Atlantic and Pacific coasts. The disease reached the Hawaiian Islands by way of Japan, but no cases secured entry to the country from this direction. A few actual cases and many suspects came to the port of New York in ships from Italian ports and several deaths occurred in quarantine. Two outside cases developed, one in Auburn and one in Brooklyn, and another case was reported in Boston. The rigid enforcement of quarantine regulations, however, prevented any further spread of the disease. The present pandemic began in India in 1902 and in that year spread to China and the Philippine Islands. Since that time the disease has gradually but steadily extended, both by caravan routes and by sea, until Persia, Arabia, Egypt, Syria, Palestine, and Asia Minor were infected. Outbreaks also subsequently occurred in Russia, a few cases were reported from Germany, and during the latter part of 1910 rather severe outbreaks occurred in different parts of Italy and the Madeira Islands. In Italy down to November 1, 1911, 14,803 cases were reported, with 5661 deaths. See VITAL STATISTICS.

CHOSEN. See KOREA.

CHRISTIAN ENDEAVOR, UNITED SOCIETY OF. This society numbered in 1911 3,953,850 members, organized in 79,077 societies. The membership is chiefly in the United States and Canada, but it is found also in Australia, China, India, Japan, and other countries. The 25th International Christian Endeavor Convention was held at Atlantic City, N. J., July 6, 1911. The reports showed that great gains had been made in the work of the society during the year. The effort made for several years to secure a fund for \$200,000 for an international headquarters building had resulted in receiving over \$155,000 in cash and pledges, with \$20,000 more available, leaving a balance of \$25,000 at the time of the meeting of the convention. The work

of the society included efforts against Sunday labor and for hospitals and missions and work among negroes. The officers of the society are Francis E. Clark, president, and William Shaw, general secretary.

CHRISTIAN SCIENTISTS. See RELIGIOUS DENOMINATIONS.

CHRISTIANS, or CHRISTIAN CONNECTION. This denomination had in 1910 87,478 communicants, 1329 churches, and 998 ministers. The general polity of the body is congregational and each church is independent in its organization. The general agent for the churches in the conduct of general work is the American Christian Convention which includes the Mission Board of the Christian Church and the Christian Publishing Association. In 1910 the denomination had 1149 Sunday schools, with 10,510 officers and teachers. Missions are carried on in Japan and Porto Rico, and various homes are maintained for aged Christian ministers at Castile, N. C. The organ of the denomination is *The Herald of Gospel Liberty*, the oldest religious newspaper in the United States. This is published in Dayton, Ohio.

CHRISTMAS ISLAND. See STRAITS SETTLEMENTS.

CHROMIUM. See CHEMISTRY, INDUSTRIAL.

CHROMOSOMES. See BIOLOGY.

CHUDEAN, R. See EXPLORATION.

CHURCH STATISTICS. See RELIGIOUS DENOMINATIONS.

CIGARS AND CIGARETTES. See TOBACCO.

CINCINNATI. See OHIO, and BUILDING.

CINCINNATI SYMPHONY ORCHESTRA. See MUSIC.

CITY BUDGET. See MUNICIPAL GOVERNMENT.

CITY CHARTERS. See MUNICIPAL GOVERNMENT.

CITY PLANNING. See ARCHITECTURE, and MUNICIPAL GOVERNMENT.

CITRUS FRUITS. See HORTICULTURE.

CITY CONGESTION. See POPULATION, CONGESTION OF.

CIVIC FEDERATION, NATIONAL. The work of the federation during 1911 was concentrated on the following subjects: Regulation of industrial corporations, regulation of railroads and municipal utilities, banking and currency, taxation, reform in legal procedure, pure food and drugs, commercial measures drafted by the commissioners on uniform State laws, workmen's compensation, and industrial mediation and arbitration. To further this work have been organized State councils in thirty-one States. Meetings were held by these councils during the year. Their chief purpose is to urge uniform State legislation, to work for the coordination of State with federal legislation where conflict now exists, and to aid in securing federal legislation on interstate matters that are concededly in the interest of public welfare. At the eleventh annual meeting held in January, 1911, a committee was appointed by President Low to consider the subject of State and federal regulation of combinations. Twenty thousand questionnaires were sent out by this committee to merchants, manufacturers, bankers, lawyers, representatives of labor, and others for the purpose of obtaining their views with a view to proposing a substitution or amendment to the Sherman Anti-Trust act. In answer to these

16,000 opinions were received. Of these 20 per cent. asked for the repeal of the law and 84 per cent., while not wishing a repeal, declared that the present form is not clear. Important work was done during the year by the department on workmen's compensation and by the committee on reform of legal procedure, which had cooperated with a similar committee of the American Bar Association. This joint committee is endeavoring to secure through Congressional action a simplified practice act for the federal courts which can be used by the State councils of the Federation as the basis for a reform practice act in the several States. This bill passed the House at the last session of the 61st Congress, but did not reach the Senate. A national department on food and drugs was organized October 2, 1911, under the chairmanship of John Hays Hammond.

Other departments of the Federation include the Conciliation Department, the Industrial Economics Department, Employers' Welfare Department, and the Woman's Department. The officers of the Federation are as follows: President, Seth Low; vice-presidents, Samuel Gompers, Nahum J. Bachelder, Ellison A. Smyth, and Benjamin I. Wheeler; treasurer, Isaac N. Seligman; chairman of the executive council, Ralph M. Easley; secretary, D. L. Cease.

CIVIL SERVICE. FEDERAL CIVIL SERVICE. There were on June 30, 1911, approximately 391,350 officers and employees of the federal civil service. Of these 227,657 held positions subject to competitive examination under the civil service rules, an increase of 5849 during the year. About 6500 were unclassified laborers subject to tests of physical fitness under the labor regulations. Of the 163,693 persons whose positions are not subject to competitive examination under the civil service rules, 10,064 were Presidential appointees, 7994 being of the first, second, and third classes. There were 37,009 fourth-class postmasters. Of minor employees, chiefly laborers on the Isthmian Canal work, there were 28,199; 3562 were employees of the Department of Commerce and Labor, chiefly in the Census Bureau. These were all appointed through examination or some other method prescribed by the Thirteenth Census act. There were 18,142 unclassified employees in the field service, and in the navy yards approximately 25,000 mechanics and laborers subject to appointment under navy yard regulations. Those excepted from examination under different rules of the civil service numbered 23,589.

During the year ending June 30, 1911, 23,256 persons were appointed, transferred, or promoted upon examination, to positions in the competitive classified service, and 2099 were transferred, promoted or reinstated on certificate without further examination. Including appointments to the Philippine service, to the Thirteenth Census force, and to positions of mere unskilled labor, 25,293 appointments were made as the result of competition.

POLITICAL ACTIVITY OF OFFICE-HOLDERS. During 1911 there were comparatively few instances of political activity of office-holders, and with one or two exceptions the cases which were noted were of only ordinary importance. This was particularly significant as the fiscal year includes the political campaign in the fall of 1910. The reason for the apparent decrease in political activity and political solicitation is undoubtedly that employees and the public in gen-

eral are becoming better informed as to the civil service act and rules and of the resolute stand of President Taft in support of them. There were no convictions during the year for violations of the statutes relating to the solicitation and receipt of political assessments. During the year it was found that appointments to the federal service at New Orleans were dependent to a large degree upon the recommendations of political leaders who sought to secure political contributions in exchange for influence in appointment. The testimony in the case was laid before President Taft and this action was followed by the resignation of the postmaster and the collector of internal revenue, against whom the principal charges had been made.

EXTENSIONS OF CLASSIFICATION. The Civil Service Commissioners believe that a wider application of the principle of filling the higher administrative positions now unclassified by the promotion of classified employees would be distinctly in the interest of efficiency, stability, and a higher standard in the personnel of the service. This belief is shared by President Taft and he has made recommendations to bring this about in several messages, including the message to Congress in December, 1911. In this message he recommended to Congress the enactment of a law applying the various civil service regulations to the diplomatic and consular service. A bill known as the Lowden bill was introduced to bring this about. This bill classifies and grades the secretaryships in the diplomatic services and provides for a board of examiners in both the diplomatic and consular service.

STATE CIVIL SERVICE. An important addition to civil service legislation was accomplished during the year in the passage by the Illinois legislature of an act amending State civil service laws in important particulars. Measures designed to improve the civil service were also passed by the Connecticut legislature, while a State-wide civil service law applying to the State and county service was defeated in California. In New Jersey the provisions of the State civil service law for several towns and cities was accepted by referendum. For civil service in general in relation to cities, see MUNICIPAL GOVERNMENT.

NATIONAL CIVIL SERVICE REFORM LEAGUE. This organization, which is devoted to the extension of civil service and the enforcement of civil service laws, held its annual meeting in Philadelphia on December 14 and 15, 1911. Charles W. Eliot, president, was ill in Ceylon, and Moorfield Storey, vice-president of the league, presided. President Eliot's address, reviewing the work of the league during the year, was read at the meeting. An address was delivered by Hon. Rudolph Blankenburg, mayor of Philadelphia. Resolutions were adopted urging certain reforms in civil service laws, especially measures forbidding any display of partisanship or any political activity by public servants in the competitive, classified, federal service. Recommendations were made that the rule prohibiting any partisan activity be at once extended to all federal officeholders whose political opinions cannot properly affect their official duties. Reports were made by committees on superannuation, on civil service in dependencies, and on consular reform. The president elected for 1911-12 was Charles W. Eliot.

CLAIRVOYANCE. See PSYCHICAL RESEARCH.

CLARK, CHAMP. See UNITED STATES, paragraphs *Campaign and Congress*.

CLARK, J. SCOTT. An American educator, died December 28, 1911. He was born in Copenhagen, N. Y., in 1854 and graduated from Syracuse University in 1877. After acting as principal of the Evanston High School for several years he was appointed in 1882 instructor in rhetoric, English composition, and elocution at Syracuse University. In 1892 he was appointed professor of English language in Northwestern University. He was the author of *A Practical Rhetoric* (1886); *A Briefer Practical Rhetoric* (1888); *The Art of Reading Aloud* (1892); *A Study of English Prose Writers* (1898); *A Study of English and American Poets* (1909) and *The Shorter Poems of Robert Browning* (1909).

CLARKE, ALBERT. An American soldier and economist, died July 16, 1911. He was born at Granville, Vt., in 1840 and was educated at the Barre Academy. He enlisted in the 13th Vermont Infantry in 1862 and served with distinction in the Civil War. At its close he became editor of the *St. Albans Messenger* and from 1883 to 1885 was on the staff of the *Boston Daily Advertiser*. He became editor of the *Rutland Herald and Globe* in 1886. In 1889 he was chosen secretary of the Home Market Club in Boston and editor of the *Home Market Bulletin*, now the *Protectionist Magazine*. From 1899 to 1902 he was a member of the United States Industrial Commission. He was judge-advocate-general of the Grand Army of the Republic in 1897. He was the author of many addresses and pamphlets dealing with protection.

CLARKE, Sir CASPAR PURDON. An English art director, died March 29, 1911. He was born in London in 1846. Although educated as an architect, from the time when he was twenty years old until he came to the United States to assume the directorship of the Metropolitan Museum of Art in 1905, he was connected in one capacity or another with the South Kensington Museum in London. In the year of his graduation from the architectural school he was awarded a national medallion for architectural design and for the next two years he was engaged by the English government in preparing plans for remodeling the heating and ventilating systems of the Houses of Parliament. On the conclusion of his work he was transferred to the Architectural Works Department of the South Kensington Museum and was engaged on drawings for architectural courts of that museum and for the Bethnal Green Museum. In 1870 he went to Italy to superintend reproductions in that country for the South Kensington Museum. Here he remained one year. In 1872 he completed the Church of St. Mark, Alexandria, and afterwards began a series of journeys through the East, purchasing art objects for the museum, in the meantime superintending the building of the British consular and legation buildings in several cities in Persia. When the work of constructing and inspecting these buildings was finished he continued his travels, visiting Russia, Greece, Turkey, Syria, Italy, and Germany, making purchases in these countries for the South Kensington Museum. In 1878 he was appointed architect to the Royal Commission for the Paris Exposition of 1878 and agent for the government of India. He received at the same time medals for art work and the decoration of the

Legion of Honor. In 1880 he became directly connected with the Indian Department of the South Kensington Museum and spent several years in India purchasing art works for this department. In 1884 he visited the United States for the purpose of studying dormitories for women students. These studies resulted in the building of Alexandra House in Kensington. In 1885 he again visited India to arrange for the Colonial and Indian Exhibition and was architect to the Indian and Chinese art exhibition of that year and to the Colonial and Indian exhibition of the year following. He was awarded a gold medal at the Paris Exposition of 1889 for his services as architect to the British Indian section. The same year he was appointed keeper of the art section of the South Kensington Museum and in 1891 assistant art director. Five years later he was appointed director and was knighted. In 1905 he was appointed director of the Metropolitan Museum, New York City. His long and varied museum experience in the Far East made his services of especial value to the museum and his sympathy with industrial art helped to give it the breadth of development which it manifested in the five years in which he held office. In 1910 he was obliged to resign on account of ill health. He became the European correspondent, and a yearly pension of \$5000 was voted to him by the directors. He wrote and lectured much on art matters and was recognized as the first living authority on Oriental textiles.

CLARKE, RICHARD H. An American lawyer, died May 24, 1911. He was born in Washington, D. C., in 1827 and graduated from Georgetown University in 1846. In 1848 he was admitted to the bar in Washington and practiced there until 1865. He appeared as counsel in many important cases at the Washington bar. One of these established the validity at common law of building associations, and another that the municipal government issuing bonds or certificates of indebtedness out of a particular fund is liable generally for the debt in case such fund was not provided for by the municipality. In 1865 he was admitted to the New York bar. He was associated with Charles O'Connor in several important cases, including the Jumel will case and the case of the United States against Jefferson Davis for treason. He was also chosen to investigate and report on the claims of the heirs of Anneke Jans. He was one of the original members and founders of the Association of the Bar of the City of New York. He was the editor of *The History of the Bench and Bar of New York* and was the author of *Lives of the Deceased Bishops of the Catholic Church of the United States*, *The Illustrated History of the Catholic Church in the United States*, *Life of Pope Leo XIII.*, *Old and New Lines on Columbus*, and *France's Aid to America in the War of Independence*. He was for several years president of the New York Catholic Protectorate.

CLARKE, THOMAS B., PRIZE. See ART.

CLARK UNIVERSITY. An institution of higher learning at Worcester, Mass., founded in 1889. The chief aim of the university is the encouragement of original research, although it includes an undergraduate college department. This, however, is a distinct organization in itself. There were enrolled in the various departments of the university in 1910-11 116 students, with 25 members of the faculty. In the col-

lege there were 186 students and 37 members of the faculty. There were no notable changes in the faculty of either the university or college during the year and no noteworthy benefactions were received. The endowments of the university and collegiate departments amounted to \$1,500,000 each. The library has an endowment of \$800,000 and the art department of \$100,000. The university includes nine departments. It publishes the *American Journal of Psychology*, *The Pedagogical Seminary*, and the *American Journal of Religious Psychology and Education*. The president of the university is G. Stanley Hall, and the president of the collegiate department is Edmund C. Sanford, who was formerly professor of experimental and comparative psychology at the university. The library contains about 50,000 volumes.

CLASSICAL PHILOLOGY. See PHIL-
OLOGY, CLASSICAL.

CLEVELAND. See OHIO, and MUNICIPAL
OWNERSHIP.

CLIMATE. See METEOROLOGY.

CLOSED SHOPS. See STRIKES.

COAL. This article deals only with the subject as a whole. For information relating to the production in different States and amounts thereof, see the paragraph *Mineral Production* under those States.

PRODUCTION. The production of coal in the United States in 1910 was the largest in the history of the coal-mining industry in the country. For the first time the output exceeded half a billion short tons. The combined production of anthracite, bituminous, and lignite coal amounted to 501,576,895 short tons. This great output was attained in spite of the fact that most of the mines in Illinois, Missouri, Kansas, Arkansas, and Oklahoma were closed down for nearly six months by one of the most bitterly contested strikes in the history of the industry. Previous to 1910 the heaviest tonnage mined in a year was 480,363,424 short tons in 1907. The production in 1909 was 460,814,816 short tons. Excepting for the States affected by the strike order, the increase in production was general among the more important States. The output of anthracite in Pennsylvania increased from 72,384,249 long tons, or 81,070,350 short tons, in 1909 to 75,433,246 long tons or 84,485,236 short tons, in 1910. The bituminous production including semi-anthracite, semi-bituminous, and other varieties, increased from 379,744,257 short tons in 1909 to 417,111,142 short tons in 1910. The most important increases in production in 1910 were in the States that benefited from the idleness in the Mississippi Valley States. The largest increase in tonnage was made by the bituminous coal mines of Pennsylvania, 12,554,735 short tons. West Virginia was second, followed by Ohio, Kentucky, Indiana, and Alabama.

VALUE. The year 1910, in addition to having the largest tonnage on record, was one of generally higher values. With but one or two minor exceptions, the percentage of increase in value was larger than that of the increase in tonnage in the States where gains were shown, and the percentage of decrease in value was smaller where a loss of tonnage was shown.

MEN EMPLOYED. The coal mines in the United States gave employment in 1910 to 725,030 men, of whom 169,497 were employed in the anthracite mines of Pennsylvania and 555,533 were employed in the bituminous and lignite mines.

The anthracite workers averaged 229 days during the year and the bituminous and lignite workers averaged 217 days, the general average being 220 days. The average production per man in the anthracite mines was 498 short tons for the year and 2.17 tons for each working day, and in the bituminous and lignite mines, the average production per man was 751 tons for the year, and 3.46 tons for each working day.

LABOR TROUBLES. As indicated above, the year 1910 was notable for labor troubles in coal mines. In the bituminous coal-producing States where operations were carried on under agreement with the United Mine Workers of America, the compacts are for two years and terminate on March 31 of the "even" years. Consequently in 1909 there were no general strikes or suspensions. There were, to be sure, local disaffections, but they were generally of short duration and were not sufficient to affect the total production. The spring and summer of 1910, on the contrary, were a period notable for one of the most prolonged labor conflicts that ever occurred in the bituminous coal fields of the United States. The anthracite fields in Pennsylvania were not affected except in a few unimportant instances, the operators and miners having in 1909 renewed for a third term of three years the awards of the Anthracite Strike Commission of 1902-3. The centre of the disturbances in 1910 was in

the bituminous fields of Illinois and the Southwestern States, in the Irwin-Greensburg districts of Pennsylvania, and to a less extent in Iowa and Michigan. The total number of men on strike in the bituminous coal fields was 215,640 out of a total of 555,533. The average time lost by each man was 89 days and the total time lost was equivalent to 19,234,785 working days.

CONSUMPTION. Practically the entire output of both anthracite and bituminous coal in the United States is consumed within the country. The effort on the part of some of the operators in the Eastern States to build up an export trade has resulted in a considerable expansion of business along this line, of some importance in itself, but of comparative insignificance when considered with the total production. The total quantity of coal exported in 1910 was 15,462,570 short tons, or a little over 3 per cent. of the production. The consumption of coal of domestic production was 486,133,808 short tons. The imports of coal in 1910 amounted to 1,686,612 short tons, which added to the consumption of domestic coal made the total consumption of that year 487,820,420 short tons or 97.25 per cent. of the domestic production.

The following table shows the production and value of coal in the various States of the Union in 1909-10:

State or Territory	1909		1910	
	Quantity	Value	Quantity	Value
Alabama	13,703,450	\$16,306,236	16,111,462	\$20,236,853
Arkansas	2,377,157	3,523,139	1,905,958	2,979,213
California and Alaska	48,636	107,342	12,164	33,336
Colorado	10,716,936	14,296,012	11,973,736	17,026,934
Georgia and North Carolina	211,196	298,792	177,245	259,122
Idaho	4,553	19,459	4,448	17,426
Illinois	50,904,990	53,522,014	45,900,246	52,405,897
Indiana	14,834,259	15,154,681	18,389,815	20,813,659
Iowa	7,757,762	12,793,628	7,928,120	13,903,913
Kansas	6,986,478	10,083,384	4,921,451	7,914,709
Kentucky	10,697,384	10,079,917	14,823,319	14,405,887
Maryland	4,023,241	4,471,731	5,217,125	5,835,058
Michigan	1,784,692	3,199,351	1,534,967	2,930,771
Missouri	3,756,530	6,185,626	2,982,433	5,328,285
Montana	2,553,940	5,036,942	2,920,970	5,329,322
New Mexico	2,801,128	3,619,744	3,508,321	4,877,151
North Dakota	422,047	646,142	399,041	595,139
Ohio	27,939,641	27,789,010	34,209,668	35,932,288
Oklahoma (Indian Territory)	3,119,377	6,253,367	2,646,226	5,867,947
Oregon	87,276	235,085	67,533	235,229
Pennsylvania bituminous	137,966,791	130,085,237	150,521,526	153,029,510
Tennessee	6,358,645	6,920,564	7,121,380	7,925,350
Texas	1,824,440	3,141,945	1,892,176	3,160,965
Utah	2,266,899	3,751,810	2,517,809	4,224,556
Virginia	4,752,217	4,251,056	6,507,997	5,877,486
Washington	3,602,263	9,158,999	3,911,899	9,764,465
West Virginia	51,849,220	44,661,716	61,671,019	56,665,061
Wyoming	6,393,109	9,896,848	7,533,098	11,706,187
Total bituminous	379,744,257	405,486,777	417,111,142	469,281,719
Pennsylvania anthracite	81,070,359	149,181,587	84,485,236	160,275,302
Grand total	460,814,616	554,668,364	501,596,378	629,557,021

WORLD PRODUCTION The total coal production of the world in 1910 was approximately 1,300,000,000 short tons, of which the United States contributed about 39 per cent., by far outstripping all others. The United States has held first place among the coal producing countries of the world since 1890, when it surpassed Great Britain. The table below gives the production of the different countries for the latest dates available. For further details, see remarks on mining in the articles on the different countries.

Country	Usual unit in producing country	Equivalent in short tons
United States (1910) long tons	447,853,909	501,596,378
Great Britain (1910) long tons	264,292,588	296,007,699
Germany (1910) metric tons	222,301,660	245,043,120
Austria-Hungary (1909) metric tons	49,509,016	54,573,788
France (1910) metric tons	38,570,473	42,516,232

Country	Usual unit in producing country	Equivalent in short tons
Belgium (1910) metric tons	23,927,230	26,374,986
Russia and Finland (1910) metric tons.....	22,650,000	24,967,095
Japan (1909) metric tons	14,973,617	16,505,418
Canada (1910) short tons	12,796,512	12,796,512
China (1909) metric tons	12,000,000	13,227,600
India (1909) long tons...	11,870,114	13,294,528
New South Wales (1909) long tons	7,019,879	7,862,264
Spain (1909) metric tons	4,124,761	4,546,718
Transvaal (1910) long tons	3,970,069	4,446,477
Natal (1910) long tons...	2,296,439	2,572,012
New Zealand (1909) long tons	1,911,247	2,140,597
Mexico (1909) metric tons	1,300,000	1,432,990
Netherlands (1909) metric tons	1,120,852	1,235,515
Queensland and Victoria (a) long tons...	999,739	1,119,708
Italy (1909) metric tons.	555,073	611,857
Sweden (1909) metric tons	246,308	272,056
Cape Colony (1909) long tons	92,428	103,519
Tasmania (1909) long tons	83,790	93,845
Other countries (b) long tons	4,675,806	5,236,903
Total		1,278,577,812
Percentage of the United States		39.2

a Queensland figures are for 1910; Victoria, 1909.

b Includes Turkey, Servia, Portugal, Chile, Borneo, Peru, Greece, etc.

Although the production of coal in the United States in 1911 was probably second only to that of the record year 1910 when the half billion ton mark was passed, there have been, according to the reports of the United States Geological Survey, few more unsatisfactory years in the history of the coal mining industry. For the most part the year was one of overproduction and of a struggle for trade, which depressed prices. In Pennsylvania there was an exception to these conditions. There the mining of anthracite coal exceeded the previous highest record of 1907 by approximately 3,000,000 tons. The total amount mined during 1911 was about 85,000,000 long tons. The total production of bituminous coal in 1911 was from 3 to 5 per cent. less than in 1910 or from 20,000,000 to 33,000,000 tons in quantity. The total production aggregated between 385,000,000 and 398,000,000 short tons, as compared with 417,111,142 in 1910. The bituminous coal trade was in a more or less demoralized condition during the year. The principal cause for this, particularly in the Eastern States, was the depression in the iron trade, which was more seriously reflected in the coking coal districts.

COAL EXPORTS. The official report on coal exports issued at the close of the year was as follows: Coal exports from the United States have trebled in value in the last dozen years. The value of coal passing out of continental United States in the year 1911 is, in round terms, 80 million dollars, compared with 65 million dollars in the immediately preceding year. The stated value of coal exported in the ten months ending with October, 1911, is 44 million dollars, that of coke, 3 million dollars, and that of coal supplied to vessels engaged in the foreign trade, 18 million dollars, making a total of 65 million dollars and justifying the Bureau of Statistics of the

Department of Commerce and Labor in its statement that the aggregate value of coal passing out of the United States in the full calendar year will approximate 80 million dollars.

The United States ranks third among the coal exporting countries of the world, being exceeded in this respect by the United Kingdom and Germany. In 1910, the latest year for which comparisons can be made, the coal exports of the United Kingdom were valued at 179 million dollars, those of Germany at 104 million dollars, those of the United States, exclusive of bunker coal, 45 million dollars and those of France, about 6 million dollars. The exports of the United States have grown far more rapidly, however, than those of any of the countries named. Comparing the figures of 1910 with those of 1900, exports of coal and coke (exclusive of bunker coal) from the United States have increased from 23 to 45 million dollars, or practically 100 per cent.; those of Germany increased from 65 to 104 million dollars, or 60 per cent.; while those from the United Kingdom decreased from 183 to 179 million dollars. Those of France show little change during the decade, coal exports from that country having increased from 6¼ to 6½ millions in the period from 1900 to 1910.

Canada is the principal destination of the coal exported from the United States, being credited with \$15,126,207 out of a total of \$15,335,856 worth of anthracite and \$21,510,804 out of a total of \$28,732,888 worth of bituminous coal exported in the ten months ending with October, 1911. Of the other markets for bituminous coal from the United States the principal countries are Cuba, Mexico, and Panama, each taking between \$1,000,000 and \$2,000,000 worth annually. Canada is also the largest market for our exported coke, having received during 1910 about three-fourths of the entire exports, while practically all the remainder went to Mexico.

Coal now ranks seventh among the leading articles of exportation in the foreign commerce of the country. Coal in the value of its exports exceeds such important articles as cotton manufactures, tobacco, leather, agricultural implements, corn, and cotton seed oil; while if we add to the exports of coal to foreign countries the value of that sold for use on vessels engaged in the foreign trade, the total, 80 million dollars, would closely approach that of wheat and flour, wood manufactures, or copper.

COAST AND GEODETIC SURVEY, U. S. See EXPLORATION.

COAST ARTILLERY. See MILITARY PROGRESS.

COAST TRADE. See UNITED STATES, Commerce.

COCAINE HABIT. The spread of this habit among the negro population of certain Southern States caused some concern. District Attorney St. Clair stated before the New Orleans Board of Health that, according to police reports, there were 20,000 to 25,000 negro cocaine habitués in that city, and that a number of them were being sent to the penitentiary and insane asylums every week. A bill was therefore introduced into the Louisiana legislature prohibiting the unauthorized sale of habit-forming drugs.

A similar state of affairs was reported in Mississippi. In Philadelphia, the cocaine traffic

seemed to have revived. The peddling of cocaine and opium, which had been stopped by the State Pharmaceutical Board in the spring of 1911, after a campaign lasting more than six months, started again, so quietly, however, that no attention was attracted to it until, on December 20, a man arrested in Chinatown was found to have more than \$500 worth of cocaine and \$10 worth of opium on his person. An investigation was started, and the federal officials resolved to start a campaign which would not end until every drug vendor in the city was placed under arrest. Indian newspapers declare that cocaine is being smuggled into India in large quantities. It is said to be introduced by means of books, bicycle tires, and by other ingenious methods, and the drug is reported to come

from Germany and Austria. As a result, the habit is growing rapidly.

COCHIN-CHINA. A state of French Indo-China (q. v.). Area, 21,988 square miles. Population in 1906, 2,870,514. The delta regions are very fertile, and extensive irrigation and drainage works are in progress. Area under cultivation, 5,011,277 hectares (rice, 1,358,706 acres, yielding in 1909 1,500,000 tons). Live-stock: 11,243 horses, 241,744 buffaloes, 109,071 cattle, 709,380 swine, 3492 sheep and goats. The fisheries products are valued at 2,800,000 francs yearly. Saigon, the capital, has the largest trade in French Indo-China. The local budget balanced (1911) at 5,561,680 piasters. The trade is included in that of French Indo-China. Governor (1911), J. M. Gourbeil.

Country	Gold	Monetary Unit	Value in U. S. Gold Dollar	Coins
		Standard Peso	\$0.96,5	
Argent. Republic..				Gold: Argentine (\$4.82,4) and ½ Argentin. Silver: peso and divisions.
Austria-Hungary..	Gold	Crown .....	.20,3	Gold: 10 and 20 crowns. Silver: 1 and 5 Crowns.
Belgium	Gold	Franc .....	.19,3	Gold: 10 and 20 francs. Silver: 5 francs.
Bolivia	Gold	Boliviano .....	.38,9	Gold (†). Silver: boliviano and divisions.
Brazil	Gold	Milreis .....	.54,6	Gold: 5, 10, and 20 milreis. Silver: ½, 1, and 2 milreis.
Canada	Gold	Dollar	1.00	
Central America..	Silver	Peso† .....	.38,3	Silver: peso and divisions.
Chile	Gold	Peso .....	.26,5	Gold: escudo (\$1.82,5), doubloon (\$3.65), and condor (\$7.30). Silver: peso and divisions.
China	Silver	Tael		
		Shanghai .....	.57,4	
		Hankwan .....	.64,0	
		Canton.. ..	.62,7	
Colombia	Gold	Dollar	1.00	Gold: condor (\$9.64,7) and double-condor. Silver: peso.
Costa Rica	Gold	Colon .....	.46,5	Gold: 2, 5, 10 and 20 colons (\$9.30,7). Silver: 5, 10, 25, and 50 centimos.
Denmark	Gold	Crown .....	.26,8	Gold: 10 and 20 crowns.
Ecuador	Gold	Sucre .....	.48,7	Gold: 10 sucres (\$4.86,65). Silver: sucre and divisions.
Egypt	Gold	Pound (100 piasters) ..	4.94,3	Gold: pound (100 piasters), 5, 10, 20, and 50 piasters. Silver: 1, 2, 5, 10, and 20 piasters.
France	Gold	Franc .....	.19,3	Gold: 5, 10, 20, 50, and 100 frs. Silver: 5 frs.
Germany	Gold	Mark .....	.23,8	Gold: 5, 10, and 20 marks.
Great Britain.....	Gold	Pound sterling	4.86,6½	Gold: sovereign (pound sterling) and ½ sovereign.
Greece	Gold	Drachma .....	.19,3	Gold: 5, 10, 20, 50, and 100 drachmas. Silver: 5 drachmas.
Haiti	Gold	Gourde .....	.96,5	Gold: 1, 2, 5, and 10 gourdes. Silver: gourde and divisions.
India	Gold	Pound sterling‡	4.86,6½	Gold: sov. (\$4.86,65). Sil.: repuee and divisions.
Italy	Gold	Lira .....	.19,3	Gold: 5, 10, 20, 50, and 100 lire. Sil.: 5 lire.
Japan	Gold	Yen .....	.49,8	Gold: 5, 10, and 20 yen. Silver: 10, 20, and 50 sen.
Mexico	Gold	Peso¶ .....	.49,8	Gold: 5 and 10 pesos. Silver: dollars (or pesos)** and divisions.
Netherlands	Gold	Florin .....	.40,2	Gold: 10 florins. Sil.: 2½, 1 florin and div.
Newfoundland	Gold	Dollar	1.01,4	Gold: 2 dollars (\$2.02,8).
Norway	Gold	Crown .....	.26,8	Gold: 10 and 20 crowns.
Panama	Gold	Balboa	1.00,0	Gold: 1, 2½, 5, 10, and 20 balboas. Silver: pesos and divisions.
Peru	Gold	Libra	4.86,6½	Gold: ½ and 1 libra. Sil.: sol and div.
Portugal	Gold	Milreis	1.08	Gold: 1, 2, 5, and 10 milreis.
Russia	Gold	Ruble .....	.51,5	Gold: 5, 7½, 10, and 15 rubles. Silver: 5, 10, 15, 20, 25, 50, and 100 copecks.
Spain	Gold	Peseta .....	.19,3	Gold: 25 pesetas. Silver: 5 pesetas.
Sweden	Gold	Crown .....	.26,8	Gold: 10 and 20 crowns.
Switzerland	Gold	Franc .....	.19,3	Gold: 5, 10, 20, 50, and 100 fr's. Sil.: 5 fr's.
Turkey	Gold	Plaster .....	.04,4	Gold: 25, 50, 100, 250, and 500 piasters.
Uruguay	Gold	Peso	1.03,4	Gold: pesos. Silver: peso and divisions.
Venezuela	Gold	Bolivar .....	.19,3	Gold: 5, 10, 20, 50, and 100 bolivars. Silver: 5 bolivars.

* The coins of silver-standard countries are valued by their pure silver contents, at the average market price of silver. † Not including Costa Rica. ‡ Gold standard adopted December 31, 1908; 12½ Bolivianos equal the pound sterling or Peruvian pound (4.866½). § The sovereign is the standard coin of India, but the rupee (\$0.324 1-3) is the current coin at 15 to the sovereign. ¶ Customs. ** Seventy-five centigrams fine gold. ** Value in Mexico .498.

COCKROFT, JAMES. An American publisher and editor, died November 12, 1911. He was born in New York City in 1842. After studying law he engaged in the law publishing business with his uncle, Peter Voorhees. He went to Chicago, where he founded the business still conducted by Callahan & Co. After the great fire of Chicago he returned to New York where he edited the *American and English Encyclopædia of Law*. He was the founder of the firm which afterwards became the Edward Thompson Company. He edited the *Encyclopædia of Pleading and Practice* (1895); and the *Encyclopædia of Forms and Precedence* (1895):

COINS, FOREIGN VALUE OF. The table on page 188 gives the value of foreign coins in United States currency at the close of 1911.

COINAGE. See UNITED STATES.

COKE. The quantity of coke produced in the United States in 1910 exceeded that of any previous year in the history of the industry. The combined output from beehive and retort ovens amounted to 41,708,810 short tons, valued at \$99,742,701. The output in 1909 amounted to 39,315,065 short tons, valued at \$89,965,483. There was an even larger relative increase in value than in quantity in 1910. The average price advanced from \$2.29 per ton in 1909 to \$2.39 in 1910. Of the total production in 1910, 35,570,076 tons, or 82.88 per cent., were produced in beehive ovens, or in ovens in which the process is one of partial combustion, and 7,138,734 tons, or 17.12 per cent., were produced in by-product ovens, or in ovens in which the process is one of distillation. The quantity of coal consumed in the manufacture of coke in 1910 amounted to 63,088,327 short tons, valued at \$74,846,393. The total number of ovens in 1910 was 104,440, as compared with 103,982 in 1909. At the end of the year there were 2567 ovens in the course of construction. Pennsylvania leads the States in the production of coke. In 1910 there were produced in that State 26,315,607 short tons, valued at \$55,254,590, as compared with 24,905,525 tons, valued at \$50,377,035 in 1909. West Virginia ranks second with 3,803,850 tons, and Alabama third, with 3,249,027 tons. Other States producing over a million tons were Colorado, Illinois, and Virginia. The total number of establishments in Pennsylvania in 1910 was 288 with 55,656 ovens. In West Virginia were 135 establishments, with 19,912 ovens, and in Alabama 43 establishments, with 10,132 ovens. The imports of coke in 1910 amounted to 172,716 short tons, valued at \$625,130, as compared with 191,253 short tons, valued at \$736,120 in 1909. The exports amounted to 984,562 short tons, valued at \$3,053,292, as compared with 1,002,916 short tons, valued at \$3,232,673 in 1909.

By-Products of Coke. For many years the valuable materials constituting the by-products in the manufacture of coke were absolutely wasted. This was due largely to the employment of the old beehive type of coke oven rather than a by-product oven. Experiments have been carried on for many years in Germany and other foreign countries for utilizing the by-products of coke. In what is known as the beehive oven the coal is only partly consumed, or to speak more properly, the volatile combustible constituents, the gas, tar, and ammonia, everything indeed except the fixed carbon which is left behind as coke, is wasted. In the by-

product ovens it is recovered and used. In Germany little or no coke is now made except in retort or by-product ovens, and these are coming into use quite generally in the United States. The first ovens of this type were built in 1893 at Syracuse, N. Y. In 1910 there were 4078 in operation in the United States. The efficiency of the by-product ovens is shown by the fact that while the beehive ovens in 1910 produced 34,570,076 short tons of coke on a consumption of 53,559,285 short tons of coal, the retort ovens in the same year produced 7,138,734 short tons of coke on a consumption of 9,529,042 short tons of coal, or a saving of nearly 10 per cent.

The total value of the by-products obtained from the manufacture of coke in retort ovens in 1910 was \$8,479,557, or a little more than one-third of the value of the coke produced. These by-products include 27,692,858 cubic feet of surplus gas, valued at \$3,017,908; 66,303,214 gallons of tar, valued at \$1,599,453; 70,247,533 pounds of aluminum sulphate or its equivalent, valued at \$1,841,062; 20,229,421 pounds of anhydrous ammonia, valued at \$1,725,266, and 4,654,382 gallons of ammonia liquor, valued at \$295,868. In addition to this there was a small quantity of light and secondary oil and small quantities of coke breeze recovered, with an estimated value of \$400,000. The value of the recoverable or wasted contents of the coal made into coke in beehive ovens would, at the prices obtained in 1910, have been between \$35,000,000 and \$40,000,000.

What was said to be the largest Koppers by-product coke and gas-oven plant in the world was built in 1911 by the Indiana Steel Company for their Gary, Ind., works at a cost of \$6,000,000. It consists of 560 ovens arranged in eight batteries of seventy ovens each, with a charge capacity of thirteen tons of coal per oven, and a coking period of eighteen hours. The daily consumption of the plant was 9500 short tons of coal, and the yield was 8000 tons of coke, with ammonia sulphate and tar as by-products. In these ovens 95,000,000 cubic feet of gas are produced daily, of which 50 per cent. is used in the steel works, and 50 per cent. in heating the ovens. This plant has a most modern electrical equipment for handling the coal and coke. The Koppers ovens were first introduced into the United States in 1907, after having been used considerably in Europe; 1411 had been built up to 1911.

COLD STORAGE OF MEATS. See STOCK-RAISING AND MEAT PRODUCTION.

COLGATE UNIVERSITY. An institution of higher learning at Hamilton, N. Y., founded in 1819. The enrollment of students in 1910-11 was as follows: College, 403; theological seminary, 40; academy, 105. The faculty of the college numbered 30, of the theological seminary, 13, and of the academy, 10. There were no changes of importance in the faculties of these schools during the year. The college received the gift of a thoroughly equipped infirmary to be used for hospital purposes by the students of Colgate University. The amount of the productive funds is about \$2,000,000. During the year a new dormitory building, which will house about 70 students, was completed. The library contains about 60,000 volumes. The president is Elmer Burritt Bryan.

COLLEGES. See UNIVERSITIES AND COLLEGES.

COLLEGES, AGRICULTURAL. See AGRICULTURAL EDUCATION.

COLLIER, PRICE. See LITERATURE, ENGLISH AND AMERICAN, *Travel and Contemporary History*.

COLLINGWOOD, FRANCIS. An American engineer, died August 20, 1911. He was born in Elmira, N. Y., and was educated in the academy of that city and at the Rensselaer Polytechnic Institute, from which he graduated in 1855. From 1865 to 1869 he was city engineer and from the latter year to 1883 he was assistant engineer of the East River Bridge construction. From 1895 to the time of his death he was expert examiner in the New York Civil Service. From 1895 to 1904 he was lecturer on foundations at New York University. He was a member of many engineering societies in the United States and Europe.

COLLINS, Sir RICHARD HENN, Baron. A British jurist, died January 3, 1911. He was born in Dublin, Ireland, in 1842 and was educated at Trinity College, Dublin, studying afterwards at Cambridge. He was called to the bar in 1867 and became queen's counsel in 1883. His chief legal interests were in the law of business and he participated in many famous lawsuits relating to railway litigation, municipal law, and complicated business matters in general. In 1861 he was raised to the bench in place of Sir James Stephen, who resigned. In 1897 he was appointed a Lord Justice of Appeal and in 1901 he was appointed Master of the Rolls. Perhaps the most notable case in which Lord Collins was concerned was the celebrated Beck case, in which Adolf Beck was wrongly convicted and sentenced for a series of frauds. Eight years later he was rearrested on similar charges and by a succession of accidents his innocence was proved. A committee was appointed to examine and report upon this miscarriage of justice, and Lord Collins was appointed chairman. The disclosures in the Beck case in some measure led to the introduction of Lord Loreburn's act constituting the Court of Criminal Appeals. On the death of Lord Davey in 1907, Collins was made Lord of Appeal in Ordinary under the title of Baron Collins of Kensington. He gave many judgments both in the House and in Privy Council. He resigned this appointment in October, 1910. He was an arbitrator of the Venezuelan boundary question in 1897 and from 1901 to 1907 was chairman of the Historical Manuscripts Commission. He was joint editor of *Smith's Leading Cases*.

COLMAN, NORMAN JAY. An American agriculturist, died November 3, 1911. He was born in Richfield Springs, N. Y., in 1827. He was educated in the district schools, and in 1847 he removed to Kentucky where for several years he engaged in teaching. He graduated from the Louisville Law School in 1851 and practiced law in Indiana until 1852 when he removed to St. Louis. He became interested in agriculture and established *Colman's Rural World*, which he edited until the time of his death. He served in the Civil War as lieutenant-colonel of the 85th enrolled Missouri militia. In 1855-56 he was a member of the Missouri House of Representatives. He was a candidate for lieutenant-governor in 1868, but was defeated. He was, however, elected for the term 1875 to 1877. From 1885 to 1889 he was

United States Commissioner of Agriculture and when that department was elevated to an executive branch of the government he became first Secretary of Agriculture. He presided over a convention of delegates from agricultural colleges in the United States in 1885 and urged the adoption of laws creating the present system of experiment stations in connection with agricultural colleges in the United States. He was selected by a commission to head the Government Horse Breeding Farm at Fort Collins, Colorado, for the establishment of a breed of American trotting-bred carriage horses. For twenty years he was a member of the Missouri State Board of Agriculture. He was the founder and first president of the Missouri State Horticultural Society. For two years he was president of the Missouri State Press Association.

COLOMBIA. A northwestern republic of South America. Capital, Bogotá.

AREA, POPULATION, ETC. The area is variously estimated at from 435,100 to 465,700 sq. miles. In 1910 the population was estimated at 4,320,000, exclusive of some 60,000 uncivilized Indians, but great uncertainty exists as to the actual number of inhabitants, and in 1911 an executive decree provided for the taking of a general census. Municipal populations also are known with little exactness. The population of Bogotá, sometimes estimated at 150,000, has recently been placed at 101,496; Medellín, 54,946; Barranquilla, 43,849; Cartagena, 30,000. Primary instruction is free, but not compulsory. There are several normal schools and a few establishments for professional education. The total number of pupils and students in the republic in 1910 is reported at 239,987, attending 3877 institutions. The state religion is Roman Catholicism.

INDUSTRIES. Agriculture and mining are the chief industries. The products include bananas, coffee, tobacco, cacao, sugar-cane, cotton, rubber, and cereals. The estimated number of cattle is about 4,000,000. The mineral resources of the country, especially in Antioquia, are very great. There are rich deposits of copper, lead, zinc, mercury, iron, platinum, salt, and other minerals. The famous emerald mines of Muzo, seventy-five miles north of Bogotá, are leased by the government to an English syndicate. Manufactures are comparatively unimportant, though various articles of common use, as shoes, matches, sugar, liquor, etc., are produced in some of the larger towns.

COMMERCE. Value of imports and exports, in United States money:

	1907	1908	1909	1910
Imp. ..	\$12,088,563	\$13,513,892	\$12,117,927	\$17,025,637
Exp. ..	13,791,442	14,998,744	16,040,198	17,625,153

The figures for 1909 are in correction of \$10,561,047 for imports and \$15,513,346 for exports, previously given out by the Colombian statistical officer. The leading imports include flour, cotton textiles, petroleum, sugar, and lard. Coffee exported in 1909, \$6,339,119; bananas, \$1,117,787; animals and hides, \$1,553,082; Panama hats, \$825,646; tobacco, \$428,129; vegetable ivory, \$407,795; rubber, 383,544; cacao, \$236,076. Precious metals exported in 1909 and 1910 respectively: Gold in bars, \$2,150,804 and \$2,293,569; gold dust, \$901,329 and \$1,076,691; silver in bars, \$176,127 and \$407,660; platinum,

\$154,401 and \$260,633. Over half of the total exports go to the United States. Barranquilla is the chief port, with Cartagena second.

COMMUNICATIONS. Colombia has no continuous railway system, but there are various short lines engaged in local traffic. Total length of railway reported in operation at end of 1910, 980 kilometers (609 miles). There was under construction by the Pacific Railway of Colombia a section from Buenaventura on the Pacific to the valley of Cauca, which had been completed to a point sixty miles from the coast, where an important tunnel was being built, while fifteen miles beyond this point work was under way. This line will extend eventually to Bogotá, the capital. Telegraph offices, 524, with 17,181 kilometers (10,676 miles) of line. Post offices, about 500.

FINANCE. For several years the government has experienced serious financial difficulties and has counted itself successful when able to maintain the value of the paper currency, as compared with gold, at a ratio of 100 to one. The gold dollar, or peso, is equivalent to the United States dollar, the silver peso fluctuates with the price of silver, and the paper peso is legally current at one cent. Revenue for 1909, \$14,437,100, of which \$6,560,159 customs and \$2,037,117 liquor tax. The budget for 1910 balanced at \$10,831,500; for 1911, revenue \$9,570,500, expenditure \$10,831,500. Foreign debt, £2,666,400 (also the government guarantees railway bonds. £492,000, and interest on railway bonds, £1,480,000); internal debt (1910), \$3,290,169. There is an enormous outstanding paper currency.

ARMY. A law making military service compulsory for all able-bodied citizens is not uniformly applied, and a standing army of some 6000 men is maintained. Those who have served with this army are held as an unorganized reserve.

GOVERNMENT. The executive authority is vested in a president, elected by the Congress for a (constitutional) term of four years and assisted by a cabinet of seven ministers. The Congress consists of the Senate and the House of Representatives, members of the former (35) being chosen by indirect vote, and of the latter (92) by direct, for four years. In 1904 Gen. Rafael Reyes was elected president; in the following year, by congressional resolution, his term of office was extended to ten years, dating from January 1, 1905. In the summer of 1909 he resigned, and on August 3 Gen. Ramón González Valencia was designated by the Congress to serve for one year. On July 15, 1910, the Congress elected Carlos E. Restrepo, who was inaugurated on the 7th of August following for a four-year term. First and second designados (elected September 25, 1911), Marco Suárez and José María González Valencia, respectively.

HISTORY. A general election was held in February, indicating by its results that the people generally supported the existing government. By executive decree the province of Arauca was cut off from the jurisdiction of the department of Boyacá and is to be governed by a special commission. There was trouble between Colombia and Peru on account of the latter's occupation of Puerto Córdoba in territory claimed by Colombia. A battle was fought at Coquila and the defeat of the Colombians with heavy loss was reported. The dispute had been settled by arbitration, but news did not

reach the opposing sides until too late to avert the battle.

COLORADO, POPULATION. The Thirteenth Census taken in 1910 showed a population for the State of 799,024, as compared with 539,700 in 1900, an increase of 48 per cent. in the decade. The principal cities with their population in 1910 and 1900 are as follows. The figures in parenthesis are for 1900. Denver, 213,381 (133,859); Pueblo, 44,395 (28,157); Colorado Springs, 29,078 (21,085); Leadville, 7508 (12,455); Cripple Creek, 6206 (10,147). The figures for the last two cities show a decrease. They owe their founding to mining enterprises, and as the mines become less widely operated there is a movement of a portion of the population elsewhere.

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date there were in the State 46,170 farms, as compared with 24,700 in 1900. The land in farms amounted to 13,532,113 acres, as compared with 9,474,588 in 1900. The improved land in farms amounted to 4,302,101 acres. The average acres per farm was 293.1. The value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$491,471,806, as compared with a value of \$161,045,101 in 1900. The average value of property per farm was \$10,645, compared with \$6520 in 1900. The average value of land per acre was \$26.81, as compared with \$9.54 in 1900. Of the 46,170 farms in the State in 1910 37,780 were operated by owners and managers and 8390 by tenants. Of the farms operated by their owners, 26,822 were free from mortgage and 9636 were mortgaged. Of the operators and managers of farms, 37,198 were native white, 8398 were foreign-born white and 574 were negro or other non-white. The value of the various kinds of domestic animals, and poultry and bees in 1910 was \$70,161,344, as compared with a value in 1900 of \$49,954,311. The cattle numbered 1,127,737, valued at \$131,017,303; horses and colts, 294,035, valued at \$27,382,926; mules, 14,739, valued at \$1,798,935; swine, 179,294, valued at \$1,568,158; sheep and lambs, 1,428,214, valued at \$6,586,187. The poultry of all kinds numbered 1,721,445, valued at \$1,012,251. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	373,000	5,222,000	4,073,000
.....1910	346,000	6,885,000	4,131,000
Wheat .....1911	438,000	3,274,000	6,950,000
.....1910	403,000	8,994,000	7,376,000
Oats .....1911	290,000	10,150,000	4,872,000
.....1910	284,000	11,104,000	6,108,000
Rye .....1911	21,000	252,000	176,000
.....1910	20,000	280,000	188,000
Potatoes ..1911	90,000	2,150,000	3,118,000
.....1910	86,000	8,600,000	4,730,000
Hay .....1911	707,000	a 1,414,000	13,150,000
.....1910	700,000	1,400,000	15,120,000

a Tons.

MINERAL PRODUCTION. The value of the mineral products of the State in 1910 was \$80,357,715, compared with a value in 1909 of \$59,190,424. The State was in 1910 first in the production of gold. The total gold production in 1910 was valued at \$20,507,058, as compared with a value of \$21,846,600 in 1909. Of the gold produced, the value of that produced by

the Cripple Creek district was \$11,002,253. The State ranks fourth in the production of silver, being surpassed only by Montana, Utah, and Nevada. The total silver production in 1910 was 8,509,598 fine ounces, as compared with 8,846,300 fine ounces in 1909. The zinc produced in 1909 amounted to 77,089,648 pounds. There was a great increase in the lead production on account of discoveries in Leadville in 1909-10. The State produces a large amount of lead. In 1910 there were produced 19,249,503 pounds. Large quantities of copper are also mined. In 1910 this amounted to 8,339,535 pounds, a considerable decrease from the production of 1909, which was 11,485,631 pounds.

The production of gold in the State in 1911, according to the estimates of the Director of the Mint, was 926,568 fine ounces, valued at \$19,153,860. This is a considerable falling off from the production of 1910, which was 992,028 fine ounces, valued at \$20,507,058. This gave the State second rank in production, as the output of California in 1911 surpassed this. The silver produced in 1911 was 7,530,940 fine ounces, valued at \$4,142,017. This also showed a decrease from the output of 1910.

In the production of coal Colorado ranks first among the States west of the Mississippi and seventh among all the coal producing States. There were produced in 1910 11,973,736 tons, valued at \$17,026,934, as compared with 10,716,936, valued at \$14,296,012 in 1909. The increased demand for Colorado coal was caused in part by the cessation of work among the miners in the Southwestern States on account of the strike. There was also a better demand for domestic fuel. Nearly 50 per cent. of the coal mined in the State is produced in Las Animas county. A notable feature of the development of the year was the increased production of Routt county. The development in this county has dated almost entirely from 1908, when 13,000 tons were produced. In 1910, 258,452 tons were mined.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions under the State control are as follows: State House, State Insane Asylum, Soldiers and Sailors' Home, Industrial Workshop for the Adult Blind, State Home and Training School for Mental Defectives, State Industrial School for Boys, State Industrial School for Girls, State Penitentiary and State Reformatory. The appropriation for the maintenance of these institutions in 1911 was \$895,000 and for improvements \$208,700, making a total of \$1,103,700. The legislature of 1911 passed an unusually large number of important measures relating to charities and corrections of the State. One of these regulated the sentencing of first offenders to the State Reformatory, and others provided for the better administration of the affairs of the State Board of Charities and Corrections. Several public conferences were held during the year in which subjects pertaining to the welfare of the unfortunate and delinquent were discussed by those interested in the philanthropies of the State.

POLITICS AND GOVERNMENT

Little of importance occurred in the political history of the State during the year. There was no State election, as the next election for State officers is to be held in 1912. The legislature was in session until May 6. The most important meas-

ures passed will be found in the paragraph *Legislation* below. The unusually long session of the legislature was due to the attempt to elect a United States senator to succeed Charles J. Hughes, who died in 1910. It was found impossible to secure enough votes for the election of any candidate, and the legislature therefore adjourned without having made a choice. Colorado, therefore, has but one representative in the United States Senate in the Sixty-second Congress. On December 3 Senator Guggenheim announced that he would not be a candidate for reelection in 1913. He declared that he came to this conclusion solely because of personal interests. Senator Guggenheim was elected in 1907 to succeed Thomas M. Patterson, Democrat. He is identified with large mining interests, and during his service as senator was subjected to many attacks on account of his identification with these interests and his ownership of large mining properties. As the result of his withdrawal there will be an election for two United States senators in 1913. On May 26 the city of Denver was restrained by a federal injunction from issuing bonds or taking other steps toward installing a municipal water system on the ground that by an ordinance of 1890 an agreement had been made whereby the city gave the local water company a franchise for twenty years, and was then to renew the agreement or purchase the plant.

LEGISLATION. Among the important measures enacted at the legislative session of 1911 were the following: An act creating an auditing board in the State, a child labor law (see *CHILD LABOR*), a measure creating a court of appeals, an enactment abolishing the fellow-servant negligence existing by the common law, a measure creating drainage districts, a general election law, a law providing for factory inspection, a law creating a State tax commission, a general warehouse law, and a measure providing for the adoption of a State flag.

STATE OFFICERS IN 1911. Governor, John F. Shafroth; Lieutenant-Governor, Stephen R. Fitzgerald; Secretary of State, James B. Pearce; Treasurer, Roady Kenenhan; Auditor, M. A. Leddy; Attorney-General, Benjamin Griffith; Superintendent of Public Instruction, Helen M. Wixson; Commissioner of Insurance, William L. Clayton; Adjutant-General, John Chase—all Democrats except Griffith and Wixson.

JUDICIARY. Supreme Court: Chief Justice, John Campbell, Republican; justices, S. H. White, Democrat; W. A. Hill, Democrat; M. S. Bailey, Democrat; William H. Gabbert, Republican; G. W. Musser, Democrat; James E. Garrigues, Republican; Clerk, James R. Killian, Democrat.

STATE LEGISLATURE, 1911. Democrats, Senate, 26; House, 40; joint ballot, 66; Republicans, Senate, 9; House, 25; joint ballot, 34; Democratic majority, Senate, 17; House, 15; joint ballot, 32.

The representatives in Congress will be found in the article *UNITED STATES*, section *Congress*.

COLORADO, UNIVERSITY OF. An institution of higher learning at Boulder, Colo., founded in 1876. The number of students enrolled in the various departments of the university in 1910-11 was 1100. The faculty numbered 187, including lecturers and assistants. Homer C. Washburn was appointed professor of chemistry, and Carbon Gillespie, M. D., was appointed professor of anatomy. No noteworthy benefactions

were received during the year. The present income of the university amounts to about \$250,000 a year. A school of pharmacy was established in September, 1911. Two years' college work is required for entrance to the Medical School. The last two years of the medical course is in Denver. Two years' college work, beginning in September, 1912, is required for the Law School entrance. The library contains about 55,000 volumes. The president is James H. Baker, M. A., LL. D.

COLORATION. See BIOLOGY.

COLOR CHANGES. See ZOOLOGY and ORNITHOLOGY.

COLORÉD METHODISTS. See METHODISTS, COLORED.

COLUMBIA, DISTRICT OF. See UNITED STATES.

COLUMBIA UNIVERSITY. The total number of resident students at the university in the collegiate year 1911-12 was 7981. The faculty numbered 752. The student body was divided as follows: Columbia College, 757; School of Law, 411; School of Medicine, 346; Schools of Mines, Engineering, and Chemistry, 652; Schools of Fine Arts, 151; Graduate Schools of Political Science, Philosophy, and Pure Science, 1279; Barnard College, 611; Teachers' College, 1476, and College of Pharmacy, 288. In the academic year, which ended in June, 1911, the university received from gifts slightly less than \$3,000,000. One hundred and sixty-five thousand dollars was received toward the erection of a philosophy building, and \$55,000 toward the erection of the Avery Library building. Other gifts included those of anonymous donors to establish the John W. Burgess fund of \$100,000, and of friends of the late Richard Watson Gilder to establish the Richard Watson Gilder fund for the promotion of good citizenship, \$45,362. For other gifts received during the year, see GIFTS AND BEQUESTS. The total endowment fund of the university amounted at the end of the year to \$52,433,183. The total income for the year 1910-11 was \$3,172,686. An important event in the administration of the medical department was the affiliation with the Presbyterian Hospital, which will give opportunities for hospital work to graduates of the College of Physicians and Surgeons. By the will of Joseph Pulitzer (q. v.), the foundation of a school of journalism, which he had previously endowed to the amount of \$3,000,000, was made practicable. For other notes in regard to the work of the university, see UNIVERSITIES AND COLLEGES.

COLUMBUS, See OHIO, and MUNICIPAL OWNERSHIP.

COMBINATIONS. See TRUSTS.

COMETS. See ASTRONOMY.

COMMERCE. For the foreign trade of the United States, see UNITED STATES, *Exports and Imports*; for the internal trade, see UNITED STATES, *Inland Commerce*. For foreign commerce, see articles on countries. See also articles on industries and FINANCIAL REVIEW.

COMMERCE COURT. See RAILWAYS.

COMMISSION FORM OF GOVERNMENT. See MUNICIPAL GOVERNMENT.

COMMISSION ON INDUSTRIAL RELATIONS. See TRADE UNIONS.

COMMISSION ON UNIFORM LAWS, UNITED STATES. See CHILD LABOR.

COMMON SCHOOLS. See EDUCATION.

COMORO ISLANDS. See MAYOTTE.

COMORRA. See ITALY, *History*.

COMPOUNDS, CHEMICAL. See CHEMISTRY.

COMPULSORY ARBITRATION. See ARBITRATION AND CONCILIATION, INDUSTRIAL.

CONCERTS. See MUSIC.

CONCRETE, REINFORCED. The use of reinforced concrete for building purposes had grown so rapidly by 1911 that various shortcomings and failures in construction were apparent, as well as the many advantages of this structural material. It was the opinion of the best engineers that when reinforced concrete was properly made and used, it left little to be desired either in strength or in effective resisting properties. Nevertheless, there was not a wide understanding of the most recent and approved ideas in reinforced concrete construction, so much interest was attached to the building regulations promulgated by the building departments of New York City and Cleveland, Ohio, in which reinforced concrete was regulated. The superintendents of buildings of all of the five boroughs of New York City on December 28, 1911, adopted a new set of building regulations for reinforced concrete, to apply uniformly to all boroughs, and to take effect on January 1, 1912. This was of further interest as being the first time that uniform regulations had been adopted for all the boroughs of the city. These regulations define reinforced concrete, and state that it will be approved for all types of construction if the design is in accordance with good engineering practice, and stresses are figured as required by the regulations. The nature of the construction must be shown in complete drawings and specifications, and the proportions of the mixture are specified, as well as for the Portland cement and the other materials. Limits of stresses were prepared, and the entire regulations are exact and specific.

The amendment to the building code of the city of Cleveland, relating specifically to reinforced concrete construction and concrete block construction, was signed by the mayor on December 13, 1911, and was put into force. It may be recalled that a large structure, the Henke Building, in Cleveland, Ohio, collapsed on November 21, 1910, while in course of construction. After this failure various building interests in the city of Cleveland united to secure a new building ordinance which would include the latest knowledge of the science of reinforced concrete design and construction, and be properly complete and exact as distinguished from the previous loose official rules on concrete maintained by that city, and in general by other cities throughout the United States. These regulations go into the matter somewhat more extensively than those of the New York Building Department, but the general object is the same. See ARCHITECTURE.

During the year Mr. Thomas A. Edison proposed the construction of concrete furniture, and exhibited samples of concrete chairs and tables which had been cast and appropriately colored. Mr. Edison's plans for casting concrete houses continued to develop, but the practical application was not remarkably extensive.

CONDENSED MILK. See DAIRYING.

CONGER EEL. See ZOOLOGY.

CONGESTION OF POPULATION. See POPULATION.

CONGO, BELGIAN. A Belgian colony in central Africa; formerly the Congo Free State. Capital, Boma.

AREA, POPULATION, ETC. Estimated area, 900,000 square miles. Estimates of the indigenous population vary from nine to twenty millions. Estimate from tax rolls, between seven and eight millions. Non-indigenous population, January 1, 1910, 3399. Boma has about 10,000 inhabitants, including 500 whites. Matadi, 100 miles up the river, is the chief port. There are mission and agricultural schools. Fetichism is practiced by the natives (mainly of Bantu stock).

PRODUCTION AND COMMERCE. Rubber is the leading commercial product. Coffee and cacao are cultivated. Other articles of export are ivory, palm kernels, palm oil, tobacco, and white copal. Gold, copper (in the Katanga province), and other metals are found. Sugar and cotton can be grown successfully. With regard to the reforms projected in behalf of the natives, Great Britain, although willing to admit improvement, declines to recognize the annexation until convinced that affairs are proceeding satisfactorily. The three zones as indicated below are being opened up to free trade on the dates projected: 1st, July 1, 1910, the Lower Congo, Stanley Pool, Ubangi, Bangali, Kwango, Kasai, Katanga, the Eastern Province (southern part), and the river banks to Stanleyville; 2d, July 1, 1911, the Crown lands; 3d, July 1, 1912, the Welle and Aruwimi districts. The native population is reported to be already benefiting by the reforms, and trade begins to improve.

The trade, which is largely with Belgium, is shown for three years below, in francs:

	1908	1909	1910
Imports	32,561,300	28,482,000	36,802,000
Exports	57,383,100	78,014,000	66,588,000

Principal articles of export in the special trade (1910): Rubber, 51,015,000; ivory, 6,043,000; palm kernels, 2,657,000; gold, 2,515,000; palm oil, 1,798,000; white copal, 1,314,000; cacao, 1,071,000. Countries of origin and destination (1910): Belgium (imports 27,259,000 francs, exports 58,679,000), Great Britain (3,777,000 and 561,000), France (1,246,000 and 1,726,000), Germany (1,052,000 and 83,000), Portuguese possessions (546,000 and 3,388,000), Netherlands (621,000 and 727), Portugal (350,000 and 153,000), United States (105,000 and —). Vessels entered and cleared (1910), 488, of 627,997 tons.

COMMUNICATIONS. Railways, January 1, 1911, 925 kilometers. The Congo River is navigable for large vessels from its mouth at Banana to Matadi, where the European vessels discharge and recharge their cargo. Between Matadi and Leopoldville (Stanley Pool) a railroad completes the route, as the rapids and falls make the river unnavigable above Matadi. A line runs from Boma to the Mayumbe country; another from Stanleyville to Ponthierville, and another from Kinder to Kongolo. The route between Boma and Katanga will connect the Benguela, Congo, and Rhodesian railways from Lobito Bay to Broken Hill. Telegraph and telephone lines, about 1800 miles. Post offices, 39.

A contract for a 250-mile petroleum pipe line has been awarded to a Belgian firm; it will supply the steamers on the upper river with crude petroleum to replace wood as fuel.

FINANCE, ETC. Revenue and expenditure 1908, 29,055,173 and 33,769,236 francs respectively;

1909, 34,570,000 and 34,470,000; 1910, 33,516,779 and 40,370,814; estimate 1911, 40,501,700 and 59,012,728 (including 11,907,913 francs extraordinary expenditure); 1912, 45,367,639 and 66,538,970 (including 16,818,660 francs extraordinary expenditure). Total public debt, 214,909,700 francs. Governor-general (1911), Baron Wahia.

HISTORY. In 1911 the Belgian Congo completed its third year since its annexation. By the treaty of October 18, 1908, the Congo Free State had been annexed to Belgium. The colonial act passed soon afterwards by the Belgian Parliament provided for its administration. Although reforms were promised by the new government, there were general complaints in foreign countries that the old abuses continued. In 1909 a definite plan of reform was set forth by the colonial minister and this was embodied in the decree of March 22, 1910. Reformers, however, continued to complain of abuses in the Congo throughout 1910. Both in the United States and in England the reform programme of the Belgian government was declared to be inadequate.

In July, 1911, the Rev. J. H. Harris, organizing secretary of the Anti-Slavery and Aborigines Protection Society, and well known for his exposure of Congo abuses, reported in July considerable improvement in the conditions of the territory. He had made a journey of some 1200 miles and inquired among missionaries, traders, officials, and the natives as to the progress of the reforms. Where the reform scheme had gone into effect the results were, in his opinion, most beneficial to the people, but he found some features that occasioned anxiety as to the future, especially the heavy taxation. On April 4, 1911, Sir Edward Grey had declared in reply to a question in the British House of Commons, that there had been improvements in the administration, but that the exact nature of the situation could not be known till the consular officers who were touring the country in 1911 had reported. Great Britain meanwhile withheld her recognition of the annexation in accordance with the government's determination to wait until there was evidence of satisfactory conditions in the Congo. On November 21, British consular reports on Congo conditions were made public. These reported that conditions in general had improved, though abuses continued in those districts in which rubber is still demanded in lieu of taxation.

The question of the Congo came up in the Belgian Chamber of Deputies early in December, when M. Vandervelde, the Socialist leader, introduced a bill providing for a parliamentary inquiry into the condition of the natives and the enforcement of reforms. He charged the missionaries with the manufacture of alcoholic liquors, and with the detention of native children, and the territorial governors with the violation of the elephant hunting laws, and he said further that the condition of forced labor still remained. The colonial secretary, M. Renkin, professed ignorance of the charges brought against the territorial governors regarding violations of the hunting laws and obtaining ivory from the natives, but said that if the reports were true, measures would be taken against them. As to the missions, he said that if there were alcoholic liquors in the missions, they were for their own use, and that the reports of detention of children and of cruelties inflicted upon

them were exaggerated. The natives, whom M. Vandervelde had mentioned as victims of forced labor, were, said the minister, voluntary workers, but he said that he had given orders to respect the liberty of labor.

CONGO, FRENCH. See **FRENCH EQUATORIAL AFRICA.**

CONGO FREE STATE. See **CONGO, BELGIAN.**

CONGO, UPPER. See **EXPLORATION.**

CONGRESS OF LABOR, INTERNATIONAL. See **TRADE UNIONS.**

CONGRESS, UNITED STATES. See **UNITED STATES.**

CONGREGATIONALISTS. In the United States, to which Congregationalism was brought by the Pilgrims, the Congregationalists constitute the eighth largest religious body. Congregationalism in its churches is found in their relation to each other, under—first, a group of churches in annual session which is called an "association"; second, all the churches of a State meeting annually called a "conference"; and third, a National Council, the constituency of which is formed by delegates in triennial sessions from the associations and conferences. The chief organizations, under the auspices of which the benevolent and missionary work of the churches is carried on, are: The American Board of Commissioners for Foreign Missions; the Congregational Education Society; the Congregational Church Building Society; the Congregational Home Missionary Society; the American Missionary Association; the Congregational Sunday School and Publishing Society; the Congregational Board of Ministerial Relief; the Woman's Foreign Mission Boards, and the Woman's Federation and Auxiliaries for Home Missionary Work. For fellowship, culture, and inspiration, so-called clubs are maintained. There are about fifty such bodies in the United States. A license to preach is granted in some States by local associations, and in other States, by ministerial associations.

The theological seminaries known as Congregational are, Yale (undenominational), opened in 1822; Bangor, 1816; Andover, 1807; Hartford, 1834; Oberlin, 1835; Chicago, 1855; Pacific, 1869; Atlanta, 1901. In these institutions are 378 undergraduates, and 117 instructors. Forty colleges were founded by Congregationalists; in these are enrolled 23,198 students. The instructors number 2019. In their libraries there are 1,716,909 volumes. The amount of productive funds is \$34,434,087.77. On January 1, 1911, Congregationalists reported 735,563 members in the United States. At that date there were reported 6033 churches, and 6033 ministers. The Sunday schools enrolled 664,973 members. For home expenses, the amount was \$8,965,894. The total of contributions was \$2,860,582, which was distributed as follows: Foreign missions, \$566,516; education, \$66,873; church building, \$73,970; home missions, \$322,837; American Missionary Association, \$139,909; Sunday school work, \$64,870; ministerial aid, \$34,434; additional Congregational work, \$618,161; undenominational, \$973,012. World-wide Congregationalism, 14,369 churches and chapels; 1,383,376 members, and 1,485,073 members in Sunday schools.

The national council, Boston, October, 1910, discovered in its discussions and resolutions a trend toward centralization for the purpose of a

larger efficiency. A committee on ministerial and religious education is at work to conserve and strengthen the intellectual culture of the ministry, and to cultivate a more scientific understanding and application of biblical literature and teaching, especially in the interest of the young. A commission on apportionment of beneficence was created with a view to developing a systematic method of gathering and assigning the contributions of the churches for missionary service. A commission of nineteen appointed to reorganize Congregationalism has already reported and recommends that the national council meet once in two years; that delegates to the council serve for two successive sessions; that at the end of each session a moderator be elected for the next; that the committee on nominations be made permanent; that the council nominate a majority of the corporate members of the American Board; that a home board of missions be created as a uniting bond between the home societies, whose board of managers shall coordinate and supervise the work of the several existing societies; that the secretaryship be enlarged in its functions. The report of the commission of nineteen will be presented for consideration to the national council at its next session.

The fifteenth session of the national council will be held in Kansas City, Mo., October 22-31, 1913. The officers are: Moderator, Rev. Nehemiah Boynton, D. D., Brooklyn, N. Y.; secretary and editor, Rev. Asher Anderson, D. D., Boston, Mass.; treasurer and registrar, Rev. Joel S. Ives, Hartford, Conn.

CONGREGATIONAL METHODIST CHURCH. This denomination had in 1911 15,529 communicants, 333 churches, and 337 ministers. The church polity in general agrees with that of the Methodist Episcopal Church. It is strongest in the Southern States. It maintains a publishing house in Ellisville, Miss., and its official organ is *The Messenger*. The only educational institution under the auspices of the denomination is the Atlanta Bible School. The last general conference of the church was held at Anniston, Ala., in November, 1909.

CONGRESS FOR JUVENILE COURTS, INTERNATIONAL. See **JUVENILE COURTS.**

CONGRESS OF APPLIED CHEMISTRY, INTERNATIONAL. See **CHEMISTRY, INDUSTRIAL.**

CONGRESS OF ESPERANTO. See **LANGUAGE, INTERNATIONAL.**

CONNAUGHT, Duke of. See **CANADA.**

CONNECTICUT, POPULATION. The Thirteenth Census, taken in 1910, showed the population of the State as 1,114,736, compared with 908,420 in 1900, an increase in the decade of 22.7 per cent. The principal cities with their population in 1910 and 1900, the latter in parentheses, are given below: New Haven, 133,605 (108,027); Bridgeport, 102,054 (70,996); Hartford, 98,915 (70,850); Waterbury, 73,141 (51,139); Meriden, 32,066 (28,695); Stamford, 28,836 (18,839); New London, 19,659 (17,548); Torrington, 16,840 (12,453); Manchester, 13,641 (10,601).

AGRICULTURE. The Thirteenth Census included statistics of agriculture in the State. These are of date April 15, 1910. On that date the number of farms was 26,815, compared with 26,948 in 1900, a decrease of 133. The land in

farms was 2,185,788 acres, compared with 2,312,083 acres in 1900. The improved land in farms was 998,252 acres, compared with 1,064,525 acres in 1900. The average acreage per farm was 81.5, compared with 85.8 in 1900. The value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$159,399,771, compared with a value in 1900 of \$113,305,580, an increase of 40.7 per cent. Of the total number of farms in the State 24,183 were operated by owners and managers and 2632 by tenants. Of the farms operated by their owners, those free from mortgage numbered 13,080, and those under mortgage, 9958. The native white farmers numbered 19,841; foreign-born white, 6861; negro and other non-white, 113. Of the non-whites, 105 were negroes and 8 Indians. The value of the various kinds of domestic animals, poultry, and bees in 1910 was \$14,163,902, compared with a value in 1900 of \$10,932,312. The cattle numbered 195,318, valued at \$6,730,287; horses and colts, 46,341, valued at \$5,739,400; mules, 416, valued at \$72,721; swine, 52,372, valued at \$472,741; sheep and lambs, 22,418, valued at \$112,349. Poultry of all kinds numbered 1,265,702, valued at \$988,653. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

		Acreage	Prod., bu.	Value
Corn	.....1911	59,000	2,862,000	2,375,000
	.....1910	57,000	2,832,000	2,062,000
Oats	.....1911	11,000	386,000	216,000
	.....1910	11,000	405,000	178,000
Rye	.....1911	8,000	148,000	138,000
	.....1910	8,000	160,000	138,000
Potatoes	..1911	23,000	1,955,000	2,053,000
	.....1910	23,000	2,875,000	2,012,000
Hay	.....1911	490,000	a 539,000	12,666,000
	.....1910	490,000	662,000	12,578,000
Tobacco	..1911	17,000	b27,625,000	5,663,125
	.....1910	16,000	27,680,000	4,567,200

a Tons. b Pounds.

MINERAL PRODUCTION. Minerals are not produced in the State in large quantities. The total value of the mineral product in 1910 was \$3,505,161, compared with a value in 1909 of \$3,480,918. The lime produced in 1910 was valued at \$417,850; mineral waters, at \$109,853. Other products are clay products, stone, sand, and gravel.

EDUCATION. The number of children between four and sixteen years of age enumerated in October, 1910, was 248,595. The average attendance in the public schools in that year was 148,446, an increase for the year of 572. The number of children between four and sixteen years of age not in attendance in any school was 36,414. The State Board of Education has given much attention to trade training in the schools, in accordance with laws passed in 1910. The equipment of these schools will include machines of various kinds, printing presses and paper-cutting machines, linotypes, plumbing material, ample equipment for drafters' classes and for printers' classes. The schools include evening schools, largely for specialists and those requiring special instruction. The length of the course in the trade schools is about two years or 5000 hours of actual training.

POLITICS AND GOVERNMENT

On January 4, 1911, Simeon E. Baldwin was inaugurated governor of the State. In his first

message to the legislature he recommended that that body adjourn by the end of April, as in his opinion there was little demand for legislation. Nevertheless, his first message contained many recommendations for new laws. Among them were the proposal to print on the back of every ballot the oath taken when a man is made a voter, a proposal to regulate aviation, a law that women should, as property owners, vote in all municipal elections, and measures intended to solve the problem of the existing unequal legislation in the legislature by having senators elected from the State at large. He called for economy in State administration, and proposed to abolish, consolidate, or reduce salaries for many offices and commissions. He disapproved the ratification of the income tax proposal, and indorsed the plank in the party platform for popular election of United States senators.

In spite of the recommendation of Governor Baldwin, the session of the legislature was of unusual length. It lasted throughout the summer and finally adjourned on September 26. Several important measures were passed. Among these was one creating a public utilities commission to replace the State railway commission. Another important law provided for an industrial commission to investigate conditions under which women and minors worked. An appropriation of \$1,000,000 was made for improvements in the harbor of New London. A bill of lading act recommended by the conference on uniform laws was passed, and also a measure concerning the inspection and transportation of cattle and an act concerning the registration, numbering and use of airships and the licensing of operators. The public utilities commission mentioned above consists of three commissioners, appointed by the General Assembly upon nomination by the governor.

As the term of Senator Bulkley expired in 1911, it was necessary to choose his successor. He was a candidate for reelection. Opposed to him was George P. McLean, former governor of the State. A Republican caucus was held on January 10, and Mr McLean received 117 votes to 63 for Senator Bulkley. As the legislature is Republican, this is equivalent to the election of Mr. McLean and he was, accordingly, elected by the legislature on January 17. No elections for State officers were held during the year. The elections were chiefly municipal. In June the voters of the city of Norwich defeated the proposition for the commission form of government. The most interesting result of the election of November 7 was the increase in the Socialist vote cast in Bridgeport. While the Republicans elected their candidate for mayor by a plurality of 280, the Socialist vote showed an increase of 600 per cent. over the vote cast in 1909. The Socialists polled approximately 6000 votes, while the Republican vote was about 5500. The Socialists elected one alderman, the first ever chosen in the history of the city.

For events connected with labor in 1911, see **ARBITRATION AND CONCILIATION, INDUSTRIAL.**

STATE OFFICERS. Governor, Simeon E. Baldwin; Lieutenant-Governor, Dennis A. Blakeslee; Secretary of State, Matthew H. Rogers; Treasurer, Costello Lippitt; Auditors, William P. Bailey and Edward S. Roberts; Comptroller, Thomas D. Bradstreet; Attorney-General, John H. Light; Commissioner of Agriculture, Governor *ex officio*; Superintendent of Education, Charles D. Hine; Commissioner of Insurance,

Theodore H. Macdonald—all Republicans except Governor.

JUDICIARY. Supreme Court: Chief Justice, Frederick B. Hall, Republican; Associate Justices, S. O. Prentice, Republican; George W. Wheeler, Democrat; John M. Thayer, Democrat; Alberto T. Roraback, Republican; Clerk, George A. Conant.

STATE LEGISLATURE, 1911. Senate, Republicans, 21; Democrats, 14; House, Republicans, 159; Democrats, 97; joint ballot, Republicans, 180; Democrats, 111; Republican majority, Senate, 7; House, 62; joint ballot, 69.

The representatives in Congress will be found in the article **UNITED STATES**, section *Congress*.

CONQUEBOR. See **BATTLESHIPS**.

CONRAD, JOSEPH. See **LITERATURE, ENGLISH AND AMERICAN, Fiction**.

CONSERVATION. The political events connected with the subject of the conservation of public resources were concerned during the year almost entirely with Alaska and will be found treated under that head. Reference will be found also in the article **UNITED STATES, Administration and Congress**. The conservation of the national forests is treated in the article **FORESTRY**. For other phases of the question, see **IRRIGATION**, and **LANDS, PUBLIC**, and **AGRICULTURE**.

NATIONAL CONSERVATION CONGRESS. The third annual session of the National Conservation Congress was held in Kansas City, September 25-27, 1911. The special topic considered was conservation of soil. The president was Henry Wallace, of Des Moines, Ia. More than a thousand delegates were present at the meeting from every part of the United States. The programme included several notable speakers, among them President Taft, William J. Bryan, Mr. Fisher secretary of the interior, and Dr. H. W. Wiley. These were also present at the congress experts on the subjects discussed, chiefly members of faculties of the State agricultural colleges. There were two chief points emphasized by the speakers. The first was, the necessity of scientific farming to end soil robbery, and the second was the need of considering the welfare of women and children on the farm and so to make rural life attractive. The various experts in attendance upon the congress pointed out an effective remedy for treating the exhausted soil. Dr. F. B. Mumford discussed the possibility of soil conservation through animal husbandry. Other speakers discussed such subjects as acidity of soils, the use of phosphorus, legume culture, and other aspects of the feebleness and cure of soils. In relation to the welfare of the women and children living on farms, an address was made by Mrs. Harriet Wallace Ashby of Des Moines on "The Farmer's Wife." She advocated the formation of clubs for farmers' wives, the improvement of rural schools, and the establishment of social neighborhood centres. Other speakers discussed the place of the rural church, agricultural training in the schools, parcels post, and other methods for making farm life attractive. Dr. Wiley spoke of the possibility of saving lives through better sanitation and through pure food laws. The address of President Taft was, in the main, devoted to an explanation of the plan of the government to co-operate with State and county authorities in placing a farm expert, as far as possible, in every county to study particularly the conditions of

soil and climate in that county, and to act as counselor for farmers.

CONSERVATION OF SOILS. See **SOILS**.

CONSULAR SERVICE. See **CIVIL SERVICE**, and **UNITED STATES**.

CONSUMPTION. See **TUBERCULOSIS**.

CONTAGIOUS DISEASES HOSPITAL. See **HOSPITALS**.

CONTE DI CAVOUR. See **BATTLESHIPS**.

CONTROLLER BAY. See **ALASKA**.

CONVERTERS, ROTARY. See **DYNAMO-ELECTRIC MACHINERY**.

CONVICT LABOR. See **PENOLOGY**.

CONVICT LEASE SYSTEM. See **PENOLOGY**.

COOK, F. A. See **POLAR RESEARCH**.

COOK ISLANDS. A dependency of New Zealand (q. v.).

COPPER. This article deals in general terms with the production of copper. The statistics of production of the various States will be found in the paragraphs on *Mineral Production* under those States. The statistics are those gathered by the United States Geological Survey. The year 1910, like 1909, was one of prosperity in the copper industry. While the smelter output in the former year was slightly less than in 1909, it exceeded the output of any other year. The output of the refineries was the largest in the history of the industry. The decreased output was due largely to the fact that the production of copper was exceeding the consumption, and a general curtailment was inaugurated by the mining companies about the middle of the year. This curtailment did not affect the refinery output notably until after the close of the year. While no large new producers were added during the year, the development of ore and the preparation for production were actively carried on by several companies which entered the producing list in 1911. Among the more important of these were the companies in the Miami and Ray districts, Arizona, the Santa Rita district, New Mexico, the Yerrington district, Nevada, the Lake Superior district, Michigan, and the Copper River district, Alaska.

PRODUCTION, UNITED STATES. The production of copper in 1910 by smelters from copper-bearing materials in the United States was 1,080,159,509 pounds, valued at \$137,080,257, as compared with 1,092,951,624 pounds, valued at \$142,083,711 in 1909. The mined production in 1910 was 1,088,237,432 pounds, as compared with 1,126,521,126 pounds in 1909. Of the new copper refined, 782,171,204 pounds were electrolytic, 221,462,984 pounds were Lake, and 68,260,888 pounds casting.

During 1910 forty-eight copper smelting and refining plants treated material from the United States. Of these forty-five were domestic plants and three were foreign, two located in British Columbia and one in Mexico. Three plants which produced in 1910 were not operated in 1909. These were the Clara Consolidated Gold and Copper Company at Swansea, Ariz., the Consolidated Arizona Smelting Company at Humboldt, Ariz., and the International Smelting and Refining Company at International, Utah. Six small plants that operated in 1909 were not active in 1910, making a decrease of three in the number of plants active in 1910.

Twenty-four States and Territories contributed to the copper production of 1910. The three leading States, Arizona, Montana, and Michigan, produced 74 per cent. of the total output of 1910,

as compared with 76 per cent. in 1909. The six leading States, including Utah, Nevada, and California, produced over 96 per cent. of the total output in 1910, as compared with over 95 per cent. in 1909. The production in the various States in 1909-10 will be found in the table below:

[Smelter output, in pounds fine.]		
	1909	1910
Alaska	4,057,142	4,311,026
Arizona	291,110,298	297,250,538
California	53,668,708	45,760,200
Colorado	11,485,631	9,307,497
Georgia .....	.....	724
Idaho	7,096,182	6,877,515
Michigan	227,005,923	221,462,984
Montana	314,858,291	283,078,473
Nevada	53,849,281	64,494,640
New Hampshire	88,944	12,409
New Mexico	5,031,136	3,784,609
North Carolina	120,451	181,263
Oregon	245,403	22,022
Pennsylvania	994,089	740,626
Philippine Islands .....	.....	1,781
South Dakota	41,988	43
Tennessee	19,207,747	16,691,777
Texas	3,456	2,961
Utah	101,241,114	125,185,455
Vermont .....	.....	1,935
Virginia	231,971	105,313
Washington	120,611	65,021
Wyoming	433,672	217,127
Missouri and unapportioned	2,159,636	603,570
Total	1,092,951,624	1,080,159,509

CONSUMPTION. Although domestic consumption and export of refined copper were in 1910 the largest in the history of the industry, yet they were not sufficient to equal the producing capacity of the country. The most essential factor in the prosperity of the industry is an increase in the consumption of refined copper. This is necessary, not that the price may be advanced materially, but in order that the additional copper supply by the new producers, both domestic and foreign, may be absorbed and the old companies may still operate their plants at full capacity. The consumption of copper has been steadily on the increase for several years. The average price for copper in 1910, 12.7 cents per pound, was the lowest since 1902, but was not far below the average for the last twenty-five years. The cost of production was probably as low as it has been in recent years, and it would have been still lower if the plants had been operated at maximum capacity.

CONSOLIDATION. One of the most striking features of the industry during the three years ending 1910 was the continued decrease in the cost of production. Companies whose copper cost in excess of fifteen cents per pound in 1907, produced at a profit in 1910, with copper averaging 12.7 cents per pound. The most important event in the copper industry in the years 1909 and 1910 was the consolidation of companies in several of the large copper districts. Among the most important of these consolidations are that of the Amalgamated interests and the Clark copper properties of Butte, Mont., as the Anaconda Copper Company, and the consolidation of the East Butte Copper Company with the interests of the Pittsburgh and Montana Copper Company and the Pittsmtont smelter. In the Lake Superior district, Michigan, the Calumet and Hecla Mining Company purchased the Bigelow interests and a consolidation of most of the companies

affiliated with the Calumet and Hecla company was under consideration at the close of 1910. In the Bingham district, Utah, the Utah Copper Company absorbed the Boston Consolidated Copper Company. It also acquired a controlling interest in the Nevada Consolidated Copper Company. In the Ely district, Nevada, the Nevada Consolidated Copper Company absorbed the Cumberland-Ely Copper Company and the Steptoe Valley Smelting Company. In the Bisbee district, Arizona, a merger of the Calumet and Arizona Copper Company and the Superior and Pittsburgh Copper Company was effected early in 1911. In the Ray district, Arizona, the Ray Consolidated Company acquired the property of the Gila Copper Company. Most of these consolidations were brought about with the idea of increasing the efficiency of operation, and of lowering the cost of production, and these ends have generally been attained. The copper output of the country is now controlled by a few groups of interests. A factor of increasing importance to the copper industry is the output of secondary copper. During 1910 the quantity of copper that has been used and returned to the industry in the form of old scrap was equal to about seventeen per cent. of the total consumption of new copper in the United States and was exceeded in amount by the individual output of new copper by only three States, Arizona, Montana, and Michigan.

IMPORTS AND EXPORTS. The imports of copper into the United States in 1910 amounted to 344,435,771 pounds, as compared with 321,801,114 pounds in 1909. These included pigs, bars, ingots, plates, old copper, etc. The exports of metallic copper from the United States in 1910 amounted to 708,316,543 pounds, which is the largest export made in any year, exceeding that of 1909, 682,846,726 pounds, by 25,469,817 pounds.

WORLD'S PRODUCTION. The smelting production of copper in the world in 1910 was 1,903,297,003 pounds, as compared with 1,873,404,407 pounds in 1909. In 1910 the smelter output of the United States was 56.75 per cent. of the world's production, as compared with 58.22 per cent. in 1909. The following table, compiled by the Henry R. Merton Co., Ltd., of London, shows the production in 1909 and 1910. The figures are reduced to pounds except that official figures for the production in the United States and Canada are inserted.

(Copper extracted from ore or contained in the ore produced.)

Countries	1909	1910
Germany	50,264,880	55,335,460
England	881,840	1,102,300
Italy	6,172,880	7,275,180
Philippines is about 1,500,000 acres, and in		
Austria	3,527,360	4,850,120
Norway	20,502,780	23,368,760
Russia	39,682,800	50,044,420
Sweden	4,409,200	4,409,200
Spain and Portugal	116,843,800	112,655,060
Turkey	1,763,680	1,322,760
Hungary	10,361,620	11,023,000
Total Europe	254,410,840	271,386,260
Canada	52,493,863	56,598,074
Mexico	126,103,120	131,614,620
Newfoundland	3,086,440	2,425,060
United States	1,092,951,624	1,080,159,509
Total North America	1,274,635,047	1,270,797,263

Countries (cont.)	1909	1910
Argentina	1,322,760	661,380
Bolivia	4,409,200	5,511,500
Chile	80,247,440	78,924,680
Peru	35,934,980	41,005,560
Cuba	6,613,800	7,716,100
Total Central and South America	128,528,180	133,819,220
Cape Colony	10,361,620	9,920,700
Namaqualand	8,070,580	5,511,500
Other Africa	17,857,260	18,518,640
	33,289,460	33,950,640
Japan	105,379,880	102,954,820
Australia	77,161,000	90,388,600
Grand total	1,873,404,407	1,903,297,003

ESTIMATES FOR 1911. Statistics and estimates received by the United States Geological Survey from all plants known to produce blister copper from domestic ores and from all Lake mines indicate that the copper output in the United States in 1911 exceeded that of 1910, and nearly equalled the record production of 1909. According to these estimates the output of blister and Lake copper in 1911 was 1,091,554,000 pounds, as compared with 1,080,159,509 pounds in 1910 and 1,092,951,624 pounds in 1909. Statistics indicate a considerable decrease in domestic consumption, as compared with 1910. The consumption, however, will exceed 700,000,000 pounds.

COPYRIGHT. The act to amend and consolidate existing copyright laws in the United States which passed on March 4, 1909, and went into effect on July 1 of that year, has been described in detail in the YEAR BOOK of 1910. It brought about an important change in the law by its provision that copyright is secured by publication with statutory notice. No important changes in the text or interpretation of copyright legislation were effected in 1911. During the fiscal year ending June 30, 1911, the registrations numbered 115,198, of which 26,970 were books (including pamphlets, leaflets, and contributions to periodicals), 23,393 periodicals, and 25,525 musical compositions.

INTERNATIONAL COPYRIGHT. The convention on literary and artistic copyright signed by representatives of the United States and nineteen Latin-American countries at the fourth International conference of American States in 1910, was sent by the President to the Senate on January 26, 1911, and its ratification by that body occurred on February 15. The signatories were the United States, Brazil, Argentina, Colombia, Costa Rica, Chile, Cuba, the Dominican Republic, Haiti, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Salvador, Uruguay, and Venezuela. On December 8, 1910, the President had issued a proclamation admitting German subjects to the benefits of Section I. (e) of the 1909 copyright act. Similar proclamations were issued on behalf of Norway, Belgium, and Luxemburg, on June 14, 1911, and on behalf of Cuba on November 7, 1911. Reciprocal copyright relations with Sweden (not including protection against infringement in the case of mechanical reproduction of music) were proclaimed by the President on May 26, 1911.

GREAT BRITAIN. The important copyright measure presented to Parliament in 1910, which alters materially the existing law, was passed in the latter part of 1911, and was to go into effect

on July 1, 1912. Among the chief changes introduced are the following:

The scope of copyright extended to include mechanical instruments such as perforated rolls, "records," cinematograph films, architectural designs, etc.; statutory protection substituted for common-law protection against infringement; the formality of registration abolished; summary redress provided for trade in infringing copies; the term of copyright extended and varied. As redefined, copyright may apply to any literary, dramatic, musical, or artistic work, including the delivery of lectures, sermons, and addresses, the dramatizing of novels, the "novelizing" of dramas, and the making of any contrivance for the reproduction of sound or pictures. Infringement does not include quotation for purposes of fair criticism, the use, with acknowledgment, of short passages from copyrighted works other than school-books, the reporting of public lectures unless prohibited by printed notice, the reading in public of reasonable extracts, etc. Action must be begun within three years from the alleged infringement. Copyright holds during the lifetime of the author and for fifty years after his death; but after thirty years from the date of the author's death (twenty-five years in the case of works published after the passage of the act), any person may publish his work on giving notice and paying a royalty of 10 per cent.; and if heirs or assigns unreasonably hold an author's work from publication, the owner of copyright may be constrained to permit reproduction, on complaint to, the judicial committee of the Privy Council. No assignments of copyright, unless made by will, subsist for more than twenty-five years from the author's death. The act applies throughout the British empire, subject, however, to rejection or modification by the self-governing colonies of Canada, Australia, South Africa, New Zealand, and Newfoundland. Registration is not required, but only simultaneous publication within those parts of the empire to which the act applies, publication within fourteen days being deemed simultaneous.

COPTIC CONGRESS. See EGYPT.

COPTS. See EGYPT.

CORAL, ARTIFICIAL. See CHEMISTRY, INDUSTRIAL.

CORDIALS. See LIQUORS.

CORDOVA. See ALABAMA.

CORELLI, MARIE. See LITERATURE, ENGLISH AND AMERICAN, Fiction.

CORINTH. See ARCHAEOLOGY.

CORN. The United States is preëminently the leading corn country, producing about three-fourths of the world's crop. For the five years 1905-1909 the percentage of the world's crop produced was 76.2, and the exports from the country constitute about one-third of world's exports of corn, averaging during the five years 1906-1910 67,400,000 bushels annually. At the present time corn culture has spread to practically all countries with climatic conditions favoring its growth. The largest corn-producing area outside of the United States is in southern Europe and comprises Austria, Hungary, Rumania, Bulgaria, and other Balkan states, and southwest Russia. This entire region produces over one-half billion bushels annually. In Asia corn culture is mainly practiced in British India, French Indo-China, and the Philippines. The area given to the crop in the

British India about 7,000,000 acres. In Africa, Egypt, and the Union of South Africa are the principal corn-producing countries, the latter exporting annually several million bushels to Europe. Australia and New Zealand do not produce very important crops of corn, which is known there and in South Africa as "mealies."

The corn crop of 1911 was reduced in different parts of the world largely by drouth. The four principal corn-growing countries, the United States, Argentina, Hungary, and Italy, produced about 556,000,000 bushels less than in 1910. All other countries contribute only 14 per cent. of the world's crop. The yields of the four countries mentioned for 1911 and 1910 were respectively as follows: United States, 2,531,488,000 and 2,886,260,000 bushels; Argentina, 27,675,000 and 175,330,000 bushels; Hungary, 137,069,000 and 187,731,000 bushels; and Italy, 93,837,000 and 97,199,000 bushels. In Bulgaria the average yield per acre was over 100 per cent. better than in 1910, and Rumania also had a better average yield than the year before. A more complete list of yields in 1910 and 1911 by countries is given under AGRICULTURE.

The corn crop of the United States in 1911, as a result of a most unfavorable season, was only moderate. A large acreage of unpromising winter wheat plowed up in the spring and planted to corn raised the area to 105,825,000 acres, as compared with 104,035,000 acres the year before. Shortage of moisture early in the season soon after or during corn-planting time, dry weather and hot winds in the summer, and later heavy rains and heavy winds did considerable injury to the crop. The hot winds occurring in the western Mississippi Valley States, when the early fields were tasseling, prevented perfect pollination, and thus interfered with the proper development of the ear. The average yield per acre this year, 23.9 bushels, as compared with 27.7 bushels in 1910, was the lowest since 1901. The average farm value per bushel on December 1, 1911, was 61.8 cents, the highest in the records of the United States Department of Agriculture, with the exception of 1881, when it reached 63.6 cents. The total value of the crop based on this bushel value amounted to \$1,565,258,000, as compared with \$1,384,817,000, the value of the preceding crop. This total value has been exceeded only twice, in 1908 and 1909. The leading corn States in 1911 produced the following amounts: Illinois, 334,950,000 bushels; Iowa, 305,350,000 bushels; Missouri, 192,400,000 bushels; Indiana, 174,600,000 bushels; Nebraska, 155,925,000 bushels; Ohio, 150,540,000 bushels; and Kansas, 126,150,000 bushels. All other States produced less than 100,000,000 bushels each. In acreage Illinois stood first, with 10,150,000 acres, followed by Iowa, with 9,850,000 acres; Kansas, with 8,700,000 acres; Nebraska, with 7,425,000; Missouri, with 7,400,000, and Texas, with 7,300,000 acres.

In comparing the last two census years the Thirteenth Census points out that the area of corn harvested increased from 94,913,673 acres in 1890 to 98,383,033 acres in 1909, a gain of 3.7 per cent. The production of 1909, 2,252,190,000 bushels, was 4.3 per cent. less than in 1899. In 1909 nearly three-fifths of the acreage was in the north central States—21,910,559 acres in Ohio, Indiana, Illinois, Michigan, and Wisconsin, and 35,945,297 acres in Minnesota, Iowa, Missouri, North Dakota, South Dakota, Ne-

braska, and Kansas. In acreage in 1899 Illinois, Iowa, Kansas, Missouri, Nebraska, and Texas, and in 1909 Illinois, Iowa, Kansas, Nebraska, Missouri and Oklahoma, ranked first. In production Illinois, Iowa, Kansas, Nebraska, Missouri, and Indiana ranked first in 1899, and Illinois, Iowa, Indiana, Missouri, Nebraska, and Ohio in 1909.

Much attention continued to be given to the improvement of corn by breeding. Work done by the Connecticut Experiment Station and by the United States Department of Agriculture pointed out the increased vigor of first generation hybrid corn, and suggested its utilization as of importance to the corn-grower. Extension work among farmers to secure larger yields and better grain was carried on vigorously in all the more important corn-growing States. The National Corn Exposition was held in 1911 at Columbus, Ohio.

CORNELL UNIVERSITY. An institution of higher learning at Ithaca, N. Y. The total number of students who received instruction in the university in the year 1910-11 was 5624, an increase of 430 over the enrollment of 1909-10. These were distributed as follows: Graduate Schools, 372; School of Arts and Sciences, 1017; School of Law, 279; School of Medicine, 171; School of Veterinary Medicine, 105; School of Agriculture, 761; School of Architecture, 133; School of Civil Engineering, 558; School of Mechanical and Electrical Engineering, 1073. There were several important changes in the faculty during the year. Prof. Hiram Corson (q. v.) died on June 15, 1911. Another loss was Alexander H. R. Fraser, who for eighteen years had charge of the law library. Dr. Charles S. Bull of the department of ophthalmology died April 17, 1911. The faculty in 1910-11 numbered 507. This included three emeritus professors. Several new buildings were either contemplated or in course of construction during the year. These included a building for the department of domestic science and one for the department of poultry husbandry. A gift of \$300,000 was received from Mrs. Russell Sage for a second hall for women students. The total property of the university on August 1, 1911, amounted to \$15,410,589, and the income from all sources amounted to \$1,769,669. In addition to the gift of Mrs. Sage, as mentioned above, \$60,300 were received from Andrew Carnegie, \$20,000 from Emerson McMillan for enlargement of the campus, and \$25,000 as the first installment from the Goldwin Smith estate. See also GIFTS AND BEQUESTS. For further notes in regard to the work of the university, see UNIVERSITIES AND COLLEGES. The president is Jacob G. Schurman.

CORN EXPOSITION, NATIONAL. See AGRICULTURE.

CORPORATION. See TRUSTS, TAXATION.

CORPORATION PENSIONS. See OLD-AGE PENSIONS.

CORRAL, RAMÓN. See MEXICO.

CORROSION OF METALS. See CHEMISTRY, INDUSTRIAL.

CORRUPT PRACTICES. See ELECTORAL REFORM.

CORSON, HIRAM. An American critic, poet and educator, died June 15, 1911. He was born at Germantown, Pa., in 1828. He studied at Tremont University, Norristown, Pa. and in 1850 became librarian of the Smithsonian Institution of Washington, remaining there until

1856. Here he studied the classics extensively. From 1859 to 1865 he was lecturer on English literature in Philadelphia and from 1865 to 1866 was professor of moral science, history, and rhetoric in Girard College. He was professor of the Anglo-Saxon and English languages at St John's College from 1866 to 1870 and from 1870 to 1903 was professor of English literature at Cornell University. From 1903 to the time of his death he was professor emeritus. Professor Corson was one of a distinguished group of men who allied themselves with Cornell University at the time of or shortly after its founding. He was one of the greatest literary critics and scholars identified with that institution. He was a friend of Browning and was recognized as one of the most authoritative interpreters of the latter's work. He was also an authority on Shakespeare and he founded the Corson French prize and the Corson Browning prize at Cornell. He was a voluminous writer. Among his published works are: *The University of the Future* (1875); *The Claims of Literary Culture* (1875); *The Evolution of Shakespeare's Dramatic Blank Verse as a Chronological Test* (1877); *An Introduction to the Study of Robert Browning's Poetry* (1886); *An Introduction to the Study of Shakespeare* (1889); *The Aims of Literary Study* (1895); *The Voice and Spiritual Education* (1896); *An Introduction to the Prose and Poetical Works of John Milton* (1899). He also edited several editions of Latin and English writers. He was a contributor to magazines and reviews on literary and other subjects.

COSTA RICA. A Central American republic south of Nicaragua. Capital, San José.

AREA, POPULATION, ETC. The area is stated at 18,691 square miles. Estimated population (December 31, 1910), 379,538. Chief towns: San José, 29,660 (later estimate, 40,000); Heredia, 7511; Cartago (practically destroyed by earthquake May 4, 1910), 6018; Alajuela, 5861; Limón, 5269; Punta Arenas, 4696. In 1910 immigrants numbered 11,233; emigrants, 7236; births, 15,847; deaths, 9723. Pupils in primary and secondary schools, about 32,000; teachers, over 1000. The state religion is Roman Catholicism.

INDUSTRIES AND COMMERCE. Agriculture is the main source of wealth, and the principal crops are bananas and coffee. Other products include corn, sugar, beans, rice, and cacao.

Imports and exports in 1908: \$5,677,353 and \$7,762,728 respectively; in 1909, \$6,109,938 and \$8,176,257; in 1910, \$7,897,736 and \$8,374,364. The leading imports are cotton textiles, flour, and iron and steel goods. Chief exports in 1909 and 1910: Bananas, \$4,355,045 and \$4,230,238; coffee, \$2,639,873 and \$2,751,024; gold and silver bullion, \$792,847 and \$811,186; cattle hides, \$105,020 and \$125,094; rubber, \$71,756 and \$102,280; timber, \$32,320 and \$78,620; cacao, \$55,765 and \$41,178. Of the imports 55.26 per cent. in 1909 and 55.95 per cent. in 1910 came from the United States; 18.26 and 17.42 from Great Britain; 13.13 and 11.29 from Germany. Of the exports the United States received 58.73 and 60.22 per cent., and Great Britain 36.02 and 35.32, most of the bananas and bullion going to the former and most of the coffee to the latter.

In 1910 there entered the ports (Limón and Punta Arenas) 622 vessels, of 1,227,852 tons.

COMMUNICATIONS. The total railway mileage

at the beginning of 1911 was 627. Railways focussing at Limón, including branches to the banana region and sidings, aggregated 358 miles. The main line connects Limón with San José (103 miles). In October, 1910, a government-owned line was completed, connecting San José with Punta Arenas (69 miles) and thus affording rail communication between Atlantic and Pacific waters. In 1911 telegraph lines were reported at 1473 miles; offices, 109; post offices, 199.

FINANCE. The monetary standard is gold, and the unit of value the colon, worth 46.5 cents. Revenue and expenditure for fiscal years in thousands of colones:

	1906	1907	1908	1909	1910
Revenue	6,211	7,655	7,916	9,281	11,472
Expenditure.....	5,914	7,096	9,191	9,281	8,859

Ordinary revenue in 1909, 7,365,507 colones; in 1910, 8,121,736. Of the latter amount, 4,858,010 colones were derived from customs and 1,931,643 from liquors. The foreign debt, reconstituted in December, 1910, amounted at the end of that year to £1,617,200 (16,922,804 colones); internal debt, 11,051,604 colones; total, 27,974,408 colones. A new foreign loan of 35,000,000 francs was announced in October, 1911.

ARMY. The military force of the republic consisted of a permanent force or peace organization of less than 1000 men and a militia of about 12,000. Nominally, every citizen is liable for service.

GOVERNMENT. The executive authority is vested in a president, elected for four years, and assisted by a cabinet of five members. The congress consists of one chamber of 43 representatives. Both president and representatives are elected for four years by indirect vote. On May 8, 1910, Ricardo Jiménez was inaugurated president, succeeding Cleto González Víquez.

COST OF FOOD. See Food and Nutrition.

COST OF LIVING. See Prices.

COTTON. The cotton crop of 1911 in the United States was estimated by the Secretary of Agriculture in December at 14,885,000 bales of 500 pounds each. During the same month the International Agricultural Institute at Rome estimated the crop for this country at 14,833,000 bales, or 130.3 per cent. of that of the previous year. Although the yield of lint is the greatest in the history of cotton-growing in the United States, the price was below the average of the past two years, and the money value to the producer of the lint and seed was placed at \$775,000,000. On January 1, 1912, there had been ginned 14,332,756 running bales, excluding linters. Of the crop of 1910 on the same date 92.5 per cent. of the total had been ginned. The report for January 1, 1912, includes 106,439 bales of sea-island cotton, produced as follows: Florida, 38,095; Georgia, 63,544; and South Carolina, 4800 bales.

The estimated crop and amount ginned on December 31, 1911, by States was as follows:

State	Estimated crop. 500 pound bales.	Reported ginned. Running bales.
United States	14,885,000	14,332,756
Alabama	1,600,000	1,621,843
Arkansas	915,000	785,499
Florida	73,000	86,435

State	Estimated crop. 500 pound bales.	Reported ginned. Running bales.
Georgia	2,560,000	2,623,604
Louisiana	395,000	353,409
Mississippi	1,195,000	1,047,508
North Carolina ..	935,000	975,809
Oklahoma	915,000	902,562
South Carolina ..	1,480,000	1,509,297
Tennessee	420,000	380,949
Texas	4,280,000	3,935,539
All other States..	117,000	110,302

Of the States listed as "all others," Missouri is estimated as producing 83,000 bales, Virginia 23,000, and California 11,000 bales. In addition some cotton is grown in Arizona, New Mexico, Kansas, and Kentucky.

The total cotton crop of the United States for 1910, according to the United States census returns, was 11,608,618 bales of 500 pounds each, 90,368 bales of sea-island cotton, and 397,628 bales of linters. While the complete figures are not available, it seems probable that the production for 1911 exceeded that of 1910 in every State, with the possible exception of Oklahoma and Mississippi, and later ginning reports may show an increase for these States. The cultivation of sea-island cotton does not seem to be extending in the United States, but the West Indies are gradually increasing their production, and it is believed Porto Rico will again become a producing country. At the agricultural experiment station in Hawaii experiments have demonstrated the possibility of the production of an excellent quality of sea-island cotton. Unlike the practice in other countries, sea-island cotton is grown as a perennial and the trees are pruned annually to get the best results. Similar experiments are in progress with Caravonica cotton, of which some excellent strains have been developed. The serious attack of a bollworm on the cotton in Hawaii has served to check what was believed would be a rapid development in cotton growing.

The cotton production of the world for mill consumption in 1910 was almost 3,000,000 bales more than in the previous year. The contribution of the different countries to the supply for the years 1909 and 1910, according to the United States Census, was as follows:

Country	1910 500-lb. bales	1909 500-lb. bales
Total	19,171,000	16,776,000
United States ..	11,483,000	9,863,000
British India ..	3,508,000	3,733,000
Egypt	1,535,000	911,000
Russia	900,000	720,000
China	725,000	600,000
Brazil	360,000	360,000
Peru	128,000	107,000
Mexico	135,000	125,000
Turkey	105,000	32,000
Persia	92,000	90,000
Other countries.	200,000	195,000

From the foregoing figures it will be seen that the United States contributed 59.9 per cent. of the entire world's supply. The exports of cotton from the United States for the year 1910 were 6,484,429 bales, valued at more than \$460,000,000. The exports for 1911 were probably less in number of bales, but the value was in excess of \$585,000,000, or about one-half of the total agricultural exports of the country. At the same time raw cotton to the value of \$24,776,320 was imported, seventy-eight per cent. of the gross weight coming from Egypt.

FOREIGN COUNTRIES. Data regarding the 1911 cotton crop in foreign lands are rather meagre. That of India is estimated at about 2,476,000 bales, or about twenty per cent. less than the crop of 1910. The Egyptian crop of 1910 was 1,535,000 bales, a record production, but that of 1911 was expected to be much smaller, owing to lateness of the crop and severe injury due to the cotton bollworm. The extension of cotton growing in Africa, although receiving the active support of the governments or semi-official associations of Great Britain, Germany, France, and Belgium, is making very slow progress. Reports from a number of the English colonies show some increase in Nyassaland and Uganda, the 1910-11 crops of which are reported at 4343 and 15,000 bales, respectively. In the German colonies a falling off is noted. Togo, one of the most favored regions, exported only 1880 bales in 1910, a reduction of 200 bales from the previous year. From German East Africa 2500 bales were exported. In general the African cottons are quoted at a cent or more a pound over American middlings. The extension of cotton cultivation in Africa is meeting with many difficulties. Dunstan, in a report on the present status of cotton cultivation to the international conference on tropical agriculture in Brussels in 1910, summarized the situation, stating that a lack of laborers, the natives preferring to grow foodstuffs, and meagre transportation are serious obstacles to the extension of cotton growing in Africa. The cotton situation in Egypt is far from satisfactory. A constant reduction in the acre yield is reported. Since 1896 the acreage devoted to growing cotton has been increased by about sixty-five per cent., while the total yield in 1909 was only twenty-seven per cent. greater than in 1896. During this period the average yield of lint per acre has fallen from 522 pounds to 388 pounds per acre. A commission is studying the situation and it attributes the depreciation in yield to ravages of insects, soil exhaustion, the use of too much water since the completion of the Assuan Dam, resulting in a water-logged condition of the soil, a lack of careful selection of seed, and the wide adoption of a two-year rotation of crops in place of the three-year rotation previously followed. A new variety of cotton, called from its originator Sakellarides, has appeared in Egypt. It is claimed to be early, of good quality, and has shown considerable immunity to attacks of the cotton worm.

Recent reports show a production of about 1,250,000 bales of cotton in China, and Santo Domingo has entered the list of sea-island cotton producers, with about 275 bales, valued at \$15,000, in 1910. According to consular reports, the first cotton crop in Tamaulipas, Mexico, was produced in 1910, the yield being at the rate of a bale per acre. A Japanese association has been formed to grow cotton in Korea, and in 1911 a crop of 2240 bales was expected from about 1700 acres planted.

Of the so-called by-products of cotton-seed—oil, cake, meal, etc.—the production in 1910 was valued at more than \$142,000,000. The oil manufactured was worth \$80,430,000, and the cotton seed cake and meal \$44,660,000, hulls \$11,370, and linters \$6,250,000. The total production of seed was 5,175,000 tons, of which 4,106,000 were manufactured. The mill value of the seed averaged \$27.40 per ton in 1910.

WORK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE. The work on the standardization of cotton has continued and during the year seventy-nine sets of official cotton grades were sold. At the beginning of the year the New Orleans Exchange was the only one which had formally adopted these official grades as a basis for its operations, but during the year similar action has been taken by the exchanges in Memphis, Galveston, Mobile, Natchez, Little Rock, St. Louis, Charleston, and Macon, with other exchanges considering their adoption. For the permanent preserving of these types for future comparison, sets are especially prepared, placed in vacuum tubes, and stored in vaults. Studies are also in progress relating to some of the ginning problems. Particular attention is given to the diseases of cotton and breeding of disease-resistant forms. During the year in coöperation with the department 2000 bushels of wilt-resistant cotton seed were grown for distribution in the infected regions. Co-operative work on some of the Indian reservations has shown the possibility of growing Egyptian cotton of superior grade on the Pima reservation at Sacaton, Ariz., and some of the more progressive Indians are growing cotton. Yields of more than 500 pounds of lint per acre are reported for the crop of 1911. A large number of special investigations with cotton are in progress. These include breeding experiments, acclimatization, boll-weevil resistance, a study of some of the principles underlying the improvement of staple, earliness, habit of plant, character of seedlings, causes of deterioration in Egyptian cotton, etc. Among the latter it was found that the inferior Hindi cotton was represented in Egyptian cotton, and its greater precocity and vigor explain its continuation even when attempts are made to eliminate it by selection. The farmers' co-operative demonstration work with cotton, corn, etc., is continuing, and during 1911 there were made 10,576 cotton demonstrations. Dr. Seaman Knapp, who was in charge of this work from its beginning, died late in 1910. Experiments were carried on in the summer of 1912 in growing cotton on the Pacific coast from Imperial Valley, Cal., to Klamath Falls, Ore.

BOLL WEEVIL. The spread of the boll weevil has continued eastward as reported by the government and experiment station entomologists. It has advanced practically to the northern limit of cotton growing in Arkansas, to within a few miles of Memphis and to Pollard, in Escambia county, Alabama, thence directly to the gulf, some fifteen counties in southwestern Alabama and two in western Florida being infected. On the other hand, considerable areas of previously infested portions of Texas and Oklahoma were reported as free from boll weevil, the dry and hot summers having destroyed it. On December 5, 1911, a meeting was held at Atlanta, Ga., of the cotton States entomologists, and various plans were recommended for adoption to prevent the spread of the boll weevil into new territory. There was considerable injury reported from various localities due to the cotton worm, and unusual records are reported of the appearance of the adult insects.

MISCELLANEOUS. Secretary Knox, of the United States Department of State, has investigated the question of tare in American cotton, and as a result recommends to cotton

growers and others the standardization of the cotton bale so as to prevent so much loss, a great part of which is not justifiable. At the close of the year 1911 one of the greatest labor troubles in the history of cotton manufacture in England began, and as a result more than 160,000 employees were locked out. A serious disturbance in Massachusetts was reported early in January.

The Eighth International Cotton Congress was held at Barcelona, Spain, May, 1911, with delegates present from every cotton-manufacturing country except Russia and Japan. See **TEXTILE MANUFACTURES.**

COTTON, POWELL. See **EXPLORATION.**

COTTON LOCKOUT. See **STRIKES.**

COTTONSEED. See **COTTON.**

COTTON, STANDARDIZATION OF. See **COTTON.**

COUNTRY LIFE MOVEMENT. See **AGRICULTURE.**

COURT TENNIS. See **TENNIS.**

COWS. See **DAIRYING** and **AGRICULTURE.**

COX, GEORGE B. See **OHIO.**

CREMATING FURNACES. See **GARBAGE** and **REFUSE DISPOSAL.**

CRETE. A Mediterranean island south of Greece; an autonomous state under the suzerainty of Turkey. Area (estimate), 3327 sq. miles. Population (1900), 310,185 (Christians, 269,848; Mussulmans, 33,496; Jews, 728). Canea, the capital, had (1900) 24,537 inhabitants; Candia, 22,774. Imports (1909), 17,477,000 drachmas; exports, 13,373,000. Revenue (1908-9), 5,930,332 drachmas; expenditure, 5,905,980. The debt amounts to 5,317,226 drachmas, advanced chiefly by Great Britain, Russia, France, and Italy at an annual interest and sinking fund of 200,000 drachmas; the service was postponed till 1911. A new loan of 9,300,000 drachmas has been authorized. Crete was administered until 1911 by a high commissioner (nominated by the king of the Hellenes) of the four powers above-mentioned; but upon the retirement of M. Zaimis, who held that post from 1906 to 1911, the powers announced their intention to appoint no successor to the office. Crete is subject to the Porte, though paying no tribute. Gendarmerie and militia are under the direction of Greek officers.

HISTORY. It will be remembered that when Austria-Hungary announced the annexation of Bosnia and Herzegovina in October, 1908, Crete on the same day declared herself a dependency of Greece, but was checked in any further action by the declaration of the four protecting powers that no negotiations would be undertaken with Turkey on that subject unless order were maintained in the island. Popular discontent with the present status and the determination to unite with Greece was manifested at intervals from that time on and continued throughout the present year. The withdrawal of the warships by the four protecting powers in 1909 tended to give free rein to the movement for Greek autonomy. In 1910 the Cretan government provoked a naval demonstration on the part of the four protecting powers by its course in excluding from the Cretan assembly Moslem deputies who had refused to take the oath of allegiance to King George. Early in July of that year four cruisers, one from each of the protecting powers, delivered an ultimatum to the Cretan government saying that they would land troops and seize the customs if the

Moslem deputies were deprived of their salaries for refusing to take the oath. On the following day, July 9, the assembly agreed to admit the Moslem deputies and the powers immediately withdrew their warships. In 1911 the unrest of the Cretans continued to be a disturbing factor in the affairs of the near East. To the request of Turkey that the status of Crete be finally settled, the powers replied in September, 1911, that it was not the proper time to take such action, but that they would not prolong the official tenure of M. Zaimis nor provide for his successor. On October 24 the Cretan government resigned. In November it was reported that the country was in a state of virtual anarchy and an armed outbreak was feared. There were demonstrations by armed men in the interior in favor of union with Greece. To the complaints of the Ottoman government on the subject the powers gave it to be understood that they would reoccupy the island if the movement reached a point that menaced the status quo. The Greek premier declared that on no account would his government be allowed to be involved in a war with Turkey over the Cretan issue. Toward the end of the year the governments of Great Britain, France, and Russia informed the Cretan executive committee of their firm determination to prevent any alteration of the present status quo and to oppose any attempt to send Cretan representatives to the Greek chamber. This tended to restore order in the island. See **ARCHÆOLOGY**.

CRICKET. A feature of the 1911 cricket season was the tour through England and Ireland of the Germantown Cricket Club of Philadelphia. The Americans played thirteen matches during the trip, of which they won five, lost five, and drew three. The British teams defeated were the Mote Cricket Club, Royal Engineers, Mitcham Cricket Club, Blackheath, and the gentlemen of Liverpool. The Americans lost to the Royal Artillery, Free Foresters, Marylebone Cricket Club, Woodbrook Cricket Club, and the Phoenix Cricket Club. The draws were with the Band of Brothers, Gentlemen of Surrey, and Cork County Club. The Toronto Cricket Club in a tour of the United States lost two matches and drew four. The forty-first annual match between the United States and Canada resulted in a draw.

The Staten Island Cricket Club retained the championship of the New York and New Jersey Cricket Association and repeated its 1910 performance by not losing a match. The Staten Islanders also defeated Toronto and the Merion Colts of Philadelphia. The Metropolitan District Cricket League series was won by Kings county in Class A and Bensonhurst in Class B. The University of Pennsylvania won the intercollegiate championship. Haverford was second. Abroad Oxford won its annual match with Cambridge and Harrow lost to Eton.

CRIMINAL LAW. See **PENOLOGY**.

CRIMINALS. See **PENOLOGY**.

CRITCHFIELD, GEORGE W. An American promoter and financier, died April 8, 1911, from wounds received from insurgents in Mexico. He was born in Missouri in 1862. For a time he taught school and conducted a weekly newspaper. At the age of 22 he went to Chicago and became a reporter on the *Chicago Inter Ocean* and later held an editorial position on the *Chicago Tribune*. He removed to New York

City in 1894 and shortly afterward became interested in South American enterprises. He exploited asphalt fields in Venezuela and helped to organize an asphalt company which worked under concessions from President Castro. These concessions permitted the company to carry its products from the asphalt lakes to the coast without payment of export duty. Castro failed to live up to his agreement and practically confiscated the company's property. A claim of \$2,000,000 was filed through the United States government against Venezuela, and this was finally settled for \$450,000. In 1898 Critchfield was an unsuccessful Republican candidate for Congress. He purchased a ranch of 27,000 acres in Mexico and gave up much of his time in prospecting for oil and in the cultivation of chicle. He was engaged in prospecting for oil in the interest of a company of capitalists at the time he was shot.

CRITICISM, LITERARY. See **LITERATURE, ENGLISH AND AMERICAN; FRENCH LITERATURE; and GERMAN LITERATURE.**

CROFTS, ERNEST. An English artist and art director, died March 19, 1911. He was born in Yorkshire in 1847 and was educated at Rugby and in Berlin. He studied art in London and Düsseldorf. His first picture was exhibited at the Royal Academy in 1874. It was entitled "A Retreat: Episode of the German-French War." His paintings were chiefly historical and ranged over a wide period. They dealt mainly with military subjects. He was made an associate of the Royal Academy in 1878 and a member in 1896. Up to the time of his death he held the office of keeper of the Royal Academy. His duties included those of chief director of the Art Schools and of chief custodian of the Diploma Gallery and other artistic property of the Academy. Among his well-known paintings are: "Napoleon at Ligny," "Oliver Cromwell at Marston Moor," "The Evening of the Battle of Waterloo," "The Execution of Charles I.," and a fresco of "Queen Elizabeth Opening the First Royal Exchange" at the Royal Exchange.

CRONJE, PIET ARNOLD. A Boer soldier, died February 4, 1911. He was born about 1835 of Huguenot descent, and his first appearance as an important personage was during the insurrection in the Transvaal in December, 1880, when as commandant of the burghers of the southwestern Transvaal, he invested Potchefstroom. He distinguished himself also at Doornkop and at Majuba Hill, where he was second in command in 1881. In 1896 he dispersed the raiders led by Dr. Jameson in the Transvaal after having surrounded them at Doornkop January 2, 1896. On this occasion he showed considerable clemency in guaranteeing the lives of the raiders as a condition of their surrender. At the outbreak of the war against Great Britain in 1899 he was made chief in command of the Boer forces. At that time he was 53 years of age. He was popular with the Boers and his magnetism and stubborn energy made him an effective leader. At the outbreak of the war he was stationed with 6000 troops on the western frontier at Modder River. On November 28 he fought an indecisive battle with Lord Methuen, who was marching with his division to the relief of Kimberley. On December 11 he won a brilliant victory over the same English general at Magersfontein. On the beginning of Lord Roberts's invasion of the Orange Free

State in 1900 Cronje sent a portion of his army to the north and with the remainder sought to oppose the English advance on Pretoria. He was at last surrounded at Paardeberg where he intrenched himself and under a scathing artillery fire sustained that position until the failure of food and ammunition compelled him to surrender with some 4000 troops and six guns on February 27th. After the surrender he was sent as a prisoner of war to St. Helena. He was one of the most sagacious of the Boer leaders and was a member of the Executive Council of the Transvaal. In 1905 he visited the United States and for the remainder of the time until his death he lived quietly on his farm at Klerksdorp.

CROPS. See AGRICULTURE and separate articles on crops and under States, and foreign countries.

CROPS, WORLD. See AGRICULTURE.

CROSS COUNTRY RUNNING AND MARATHONS. The senior Metropolitan cross country championship run, the principal event of the kind in the United States, was held at Paterson, N. J. William J. Kramer of the Long Island A. C. for the third successive year was the individual winner, his time for the six miles (about) being 36 minutes 45 seconds. H. Hillawell of the New York A. C. finished second and M. D. Heysman of the Irish-American A. C. third. The team scores were: New York A. C., 26; Irish-American A. C., 65; Mohawk A. C., 73; Long Island A. C., 95; Pastime A. C., 98. In the junior championships held at Hastings-on-the-Hudson Harry McGinn of the New York A. C. was the individual winner. F. Barden of the Yonkers Y. M. C. A. finished second. The Irish-American A. C. was the team winner.

Cornell won the intercollegiate cross-country championship held at Brookline, Mass., on November 25 for the fourth year in succession. J. P. Jones and T. S. Berna of that college for the second consecutive year captured the individual honors by finishing first and second respectively. The score and order at the finish of the colleges entered were: Cornell 48; Harvard, 58; Pennsylvania, 125; Dartmouth 127. The English cross-country championships were held at Taplon, in March. F. N. Hibbins of Thrapston was the winner. He ran the ten miles in 59 minutes 22 2-5 seconds.

Fewer Marathons were run in 1911 than in 1910. The most important was the Yonkers Marathon which was won by J. J. Reynolds of the Irish-American A. C., whose time was 2 hours, 38 minutes 36 2-5 seconds. D. Sheridan of Toronto, Canada, finished second. The Missouri A. C. Marathon held at St. Louis was won by Sydney Hatch of Chicago in the slow time of 3 hours 3 minutes 56 seconds. The twelve-mile race from Fordham to the New York City Hall, held on May 6, attracted a large number of entries. The event was won by Louis Tewanima of the Carlisle Government School, whose time was 1 hour 9 minutes 16 seconds. Frank Masterson of the Mohawk A. C. finished second. The English Marathon went to Harry Green of the Surrey A. C., who ran the distance in 2 hours 46 minutes 29 4-5 seconds. M. Ryan of the Irish-American A. C., New York, was second. See ATHLETICS, TRACK AND FIELD.

CROWELL, EDWARD PAYSON. An American clergyman, scholar, and educator, died March 25, 1911. He was born at Essex, Mass., in

1830 and graduated from Amherst College in 1853. He studied at Andover Theological Seminary, graduating in 1858. In the following year he was licensed as Congregational preacher. Prior to this time he had taught Latin and Greek at the Williston Seminary. From 1855 to 1856 he was tutor in language, and from 1858 to 1864 was professor of Latin and instructor in German. In the latter year he was appointed professor of the Latin language and literature in Amherst College. He held this position until 1908 when he was made professor emeritus. From 1880 to 1894 he was dean of the faculty. For several years he was lecturer on Latin literature at Smith College. He was a member of many learned societies. He edited several Latin texts, including selections from Cicero, Pliny, and the Latin poets. He edited also the *History of the Town of Essex* in 1878. He was a contributor on theological, biographical, and historical subjects to various journals. He compiled the obituary record of graduates of Amherst College for many years. He compiled also a record of the services of graduates and non-graduates of Amherst College in the Union army and navy during the Civil War.

CRUSTACEA. See ZOOLOGY.

CUBA. An island republic of the West Indies. The capital is Havana.

AREA, POPULATION, ETC. The area of the six provinces (including the Isle of Pines, etc.) is 44,164 square miles. The census of September 30, 1907, showed a population of 2,048,980; official estimate of June 30, 1911, 2,223,284, of whom 1,961,896 were natives and 261,388 foreigners. The population, by provinces was: Havana, 576,546; Pinar del Rio, 254,620; Matanzas, 259,841; Santa Clara, 514,325; Camagüey, 135,340; Oriente, 482,612. Immigration in 1909, 31,286; 1910, 32,606 (of whom 28,380 Spanish). Principal cities, with population according to 1907 census and 1910 estimates, include: Havana, 297,159 and 302,528; Santiago de Cuba, 45,470 and 53,614; Matanzas, 36,009 and 64,385; Cienfuegos, 30,100 and 70,416; Camagüey, 29,616 and 66,460; Cárdenas, 24,280 and 28,576. Primary instruction is nominally compulsory. Enrollment in the public schools in February, 1911, 152,658 (average attendance, 105,774); in private schools, 24,434. There are various schools for secondary instruction, and higher and professional education is provided by the University of Havana, which in 1911 had 1274 matriculants.

INDUSTRIES. The staple agricultural products are sugar and tobacco. Other crops are cacao, potatoes and other vegetables, cereals, and fruits, especially pineapples. Reported production of raw sugar: 1899-90, 632,268 tons; 1899-1900, 283,051 tons; 1908-9, 1,521,818 tons; 1909-10, about 1,805,000 tons; 1910-11, over 1,460,000 tons. From sugar cane are also produced large quantities of molasses, aguardiente, and alcohol. Reported tobacco yield (in bales of about 120 lbs.): 1908, 563,059; 1909, 494,358; 1910, 639,508. Livestock, June 30, 1910: 3,098,179 cattle, 572,901 horses, 59,994 mules, 2414 asses. Cuba's mineral wealth is considerable, especially in Oriente, including iron, copper, manganese, lead, zinc, gold, asphalt, and salt. Value of mineral output in 1910, \$4,374,719 (\$3,508,366 in 1909 and \$2,314,900 in 1905). The manufacture of cigars is a very important industry.

COMMERCE. For the calendar year 1909 and

1910, imports of merchandise, \$91,447,581 and \$103,675,581 respectively; exports of merchandise, \$124,711,069 and \$150,909,020. Imports and exports of specie in 1910, \$4,283,617 and \$361,538. Leading imports in 1910: Breadstuffs, \$13,358,362; meats, \$11,476,815; cotton and manufactures, \$8,527,821; machinery, \$8,381,763; iron and steel, \$6,163,754; vegetables, \$4,453,299. Principal exports in 1909 and 1910 respectively: Sugar, \$79,130,181 and \$108,762,632 (\$52,166,812 in 1908); unmanufactured tobacco, \$19,084,704 and \$15,450,943; tobacco manufactures, \$12,900,490 and \$12,423,007; iron and copper ores, \$3,362,289 and \$4,330,476; fruits, \$2,359,397 and \$2,098,089; hides and skins, \$1,482,108 and \$1,894,738; wood, \$1,516,356 and \$1,663,398; molasses, \$1,556,695 and \$1,477,756. Trade by countries for calendar years, in thousands of dollars:

Countries	Imports		Exports	
	1909	1910	1909	1910
United States	46,339	54,569	109,408	129,329
Great Britain	12,260	12,292	5,014	10,696
Spain	8,020	8,680	866	727
Germany	6,588	6,543	4,054	3,646
France	5,308	5,514	1,216	1,549
Other American ..	7,127	8,320	2,661	3,391
Other European ..	3,893	5,532	1,081	915
All other	1,917	2,224	412	655
	91,448	103,676	124,745	150,909

The sugar export to the United States in 1910 amounted to \$102,445,805. Included in the above totals are reexports valued at \$271,471 in 1909 and \$436,651 in 1910.

COMMUNICATIONS. The length of railway in operation at the beginning of 1911 was 3433 kilometers (2133 miles); telegraph lines, 8151 kilometers (5848 miles), with 9952 kilometers (6184 miles) of wire and 171 offices; post offices, 487. When the republic was established in 1902, there were 1792 kilometers of railway in operation; during the administration of Estrada Palma (1902-6), 937 kilometers were opened to traffic; under the American provisional government (1906-9), 396 kilometers; during the administration of General Gómez, to the beginning of 1911, 308 kilometers.

FINANCE. When the American provisional government was superseded on January 28, 1909, by the present Cuban government, there were outstanding obligations of \$11,920,825 and, as relating to the month of January, \$2,023,775; there was in the treasury, \$2,685,229. Receipts to December 31, 1909, \$34,759,204; expenditure, \$36,535,404; balance in treasury, \$939,029. Receipts in 1910, \$41,614,694; expenditure, \$40,593,392; balance, December 31, 1910, \$1,960,331. In 1910, customs yielded \$24,838,030; national lottery, \$3,652,401; loan taxes, \$3,570,177. Total public debt at end of 1910, \$62,083,100 (charges, \$2,464,585).

ARMY. A permanent army, aggregating about 5000, is maintained, which has been organized by officers detailed from the United States army. It is under the direction of a general staff, and includes two regiments of infantry, organized as a brigade, and an artillery division, including two field batteries, four mountain batteries, a machine gun corps of four companies, and a corps of coast artillery. In addition, a rural guard of about 5000 officers and men used for police duty is maintained.

GOVERNMENT. The executive authority is vested in a president, who is elected by indirect vote for four years and is assisted by a cabinet of eight members. The legislative power devolves upon a congress of two houses, the Senate (twenty-four members) and House of Representatives (eighty-three). The president in 1911 was Gen. José Miguel Gómez, who was inaugurated January 28, 1909; vice-president, Alfredo Zayas. Each of the six provinces is administered by a governor who is elected by the people.

HISTORY. The year 1911 was the third year of Cuban independence, the American intervention having come to an end on January 28, 1909, when the American Provisional Governor Magoon, who had held that office since October 13, 1906, turned the administration over to the new executive, President Gómez. The latter had been chosen president in the elections of 1908. Comments on his administration were favorable at first, but during 1910 and 1911 there was an increasing body of criticism. In 1911 as in 1910 there were charges of widespread corruption against the government. These were repeatedly denied. It was said that the reason why they were not generally better known was the fear of United States intervention, which led the government to subsidize the press. It was openly declared that the government bought the silence of the newspapers and even their approval. A prominent English journal in Havana, which was quoted as an authority in the United States, was said to be in receipt of a large monthly sum from the government. The charges against the government may be briefly summarized as follows: That the taxes amounted to as much as thirty per cent.; that the people were ground down under these heavy burdens; that the executive, judicial, and legislative offices were practically sold to the highest bidders; that the public service rights were sold to concessionaries, who asked exorbitant prices; that the natural riches of Cuba were sold in perpetuity by the office-holders. It was said that Gómez, before he became president, had protested against giving the legislature the right of bestowing franchises, and that after Governor Magoon left he had sold to a group of financiers of bad repute all telephone rights for a very low price. Specifically, there were the arsenal and port improvement scandals. As to the arsenal, it was said the government had traded the last piece of land on the water front in Havana for much less valuable land in the interior of the city, resulting in a gain of \$4,000,000 to the concessionaries. The Port Improvement bill increased four-fold the dues in all the ports and provided for a contract with a new company, which gave them all port dues for thirty days in return for certain harbor improvements, as for example dredging, the making of breakwaters, etc., of which the cost was estimated at \$9,000,000. The company also received valuable water fronts in several ports. It was estimated that the company's profits in thirty years would amount to \$50,000,000. Riots occurred in August, owing to the activities of the followers of Acevedo, who had attempted to stir up a revolt in 1910. He accused the present government of corruption and demanded the resignation of the president. The riots, however, were soon suppressed. For an account of the raising of the *Maine*, see the article MAINE.

CULEBRA CUT. See PANAMA CANAL.

CUMBERLAND PRESBYTERIAN CHURCH. A religious denomination, which was organized in 1810 from a revival in the "Cumberland country" in Kentucky and Tennessee, conducted by Rev. James McCready. The denomination became in the following years of considerable strength in the South. As the result of attempts made at various times for union with the Presbyterian Church of the United States of America, the general assemblies of both churches appointed in 1903 committees on fraternity and union. These held a joint meeting and formulated a basis of union, which was approved by the general assemblies in 1904 and was ratified by the presbyteries of each body in the following year. Considerable opposition arose in the Cumberland Church and a protest was filed against the constitutionality of the assembly's action. Legal measures taken by the members of the Cumberland Church to prevent the union failed, and after the consummation of the union by the general assemblies, the opposition filed a protest and determined to "continue and perpetuate the general assembly of the Cumberland Presbyterian Church as same was constituted and organized on May 7, 1906." This action resulted in prolonged litigation for the possession of the church property. The Supreme courts of Georgia, Kentucky, Texas, Arkansas, Illinois, Indiana, and California favored the union in their decisions, while the Appellate courts of Texas and Indiana and the Supreme courts of Tennessee and Missouri were unfavorable to the union. Most of the courts upholding the union have done so on the ground that a civil court cannot review the decisions of an evangelical court. In February, 1910, the Cumberland Presbyterian Church was given possession of the Cumberland Presbyterian publishing house at Nashville, Tenn., by a decision of the court. During 1911 the Cumberland Church lost in the Supreme Court of Alabama and in the Supreme Court of Mississippi. The most important decisions pending during the year were in the Supreme Court of Oklahoma and in the United States Supreme Court. No satisfactory statistics have been gathered in recent years as to the numerical strength of the church, though it is believed that the communicants number about 100,000 with 721 ordained ministers. In 1906, according to the United States census of religious bodies, the total number of communicants was 195,770 with 2474 churches and 1514 ministers. The next general assembly will convene at Warrensburg, Mo., in May, 1912.

CUNNINGHAM CLAIMS. See ALASKA.

CURAÇAO. A Dutch West Indian colony, composed of the islands of Curaçao (210 sq. miles; 31,406 inhabitants), Bonaire or Buen Ayre (95; 6273), Aruba (69; 8815), St. Martin (17; 3072), St. Eustache (7; 1312), and Saba (5; 1996). The population is that given December 31, 1908; estimate in 1909, for entire colony, 54,580. Imports and exports (1908), 2,811,538 and 874,854 guilders (1 guilder=40.2 cents); 1909, 3,217,000 and 356,000. Vessels entered (1909), 1619, of 2,177,000 cubic meters capacity. Revenue and expenditure (estimate 1911), 677,934 and 1,005,997 guilders respectively, the difference being made up by the home government. Governor, 1911, Dr. Th. I. A. Nuyens.

CURRENCY. See MONEY; paragraph *Bank-nig Reform* under BANKS and BANKING.

CURRENCY ASSOCIATION. See NATIONAL BANKS.

CURTIS, WILLIAM ELEROY. An American journalist and writer, died October 6, 1911. He was born at Akron, Ohio, in 1850 and graduated from Western Reserve College in 1871. From 1873 to 1887 he was on the staff of the *Chicago Inter Ocean*, and from 1887 to 1901 he was Washington correspondent for the *Chicago Record*, and from 1901 until the time of his death he held the same position on the *Chicago Record-Herald*. In addition to his newspaper work he occupied several public positions. He was at one time special commissioner from the United States to Central and South American republics, and in 1889-90 was executive officer of the International American Conference. He was the first treasurer of the Bureau of American Republics, 1890-1893. In 1892 he acted as commissioner of the Chicago Exposition to Madrid and special envoy to the queen regent of Spain and Pope Leo XIII. For many years previous to his death he traveled extensively and visited nearly every country in the world and contributed letters descriptive of his travels to the *Chicago Record-Herald* and other papers. He was probably the best known American newspaper correspondent. He was a prolific writer and among his published works are *The Life of Zachariah Chandler* (1879); *Children of the Sun* (1882); *Capitals of Spanish America* (1886); *To-day in France and Germany* (1897); *Between the Andes and the Ocean* (1901); *The True Thomas Jefferson* (1901); *The Turk and his Lost Province* (1902); *The True Abraham Lincoln* (1903); *To-day in Syria and Palestine* (1904); *Modern India* (1905); *Egypt, Burma and the British East Indies* (1905), and *One Irish Summer* (1909). He was a member of nearly all the learned societies in the United States and of several in Europe.

CURTISS, GLENN H. See AERONAUTICS.

CURZON-HOWE, Sir ASSHETON GORE. A British admiral, died March 1, 1911. He was born in 1850 the younger son of the first earl of Howe. He entered the navy as a cadet at the age of 13, receiving two and a half years later his commission as lieutenant. In 1879 he was appointed first lieutenant on the *Bacchante* and in this position was responsible for the seamanship instruction of the princes. At the conclusion of his service he was made commander and in 1888 was promoted to captain. He served in the naval brigade, landed under the command of Admiral Fremantle for the punitive expedition against the sultan of Vitu in 1890. Following this service he was appointed Assistant Director of Naval Intelligence and he held his position until 1892, when he was sent to the North American station as captain of the *Cleopatra*. He saw service in Nicaragua and received the thanks of the inhabitants of Bluefields for his action in landing a party of seamen and marines for their protection. It was generally recognized that his prompt action prevented the outbreak of civil war in Nicaragua. Soon after he was appointed flag captain in the *Revenge*. After several other appointments he was, in 1901, promoted to the rank of admiral and saw service in China and in 1906 was promoted to the rank of vice-admiral. He was selected for the post of second in command of the Channel Fleet until February, 1907, when he became commander-in-chief of the Atlantic

Fleet in succession to Sir William May. He held this appointment until 1908 when he succeeded Admiral Sir Charles Drury as commander-in-chief. He was promoted to the rank of admiral in 1909. During his service in command of the Mediterranean Fleet a series of crises occurred, including the revolution in Turkey and the earthquake in Messina in December, 1908. In April, 1910, he was appointed commander-in-chief at Portsmouth.

CUSTOMS FRAUDS. See UNITED STATES, *Customs*.

CYCLING. Frank J. Kramer, of East Orange, N. J., retained his title as professional sprint champion in 1911, although A. J. Clarke made a strong bid for the highest honors. Kramer scored 10 firsts, 3 seconds, and 5 thirds during the season for a total of 67 points. Clarke had to his credit 6 firsts 4 seconds, and 5 thirds for a total of 52. Alfred Gouillet ranked third with a total of 29 points and Joseph A. Fogler fourth with 24 points. E. L. Collins for the second successive year defeated George Wiley for the professional paced title. Collins' score was 147 and Wiley's 97. The amateur championship was again won by Frank Blatz, who made a total of 16 points. Alvin Loftus ranked second with 13 points.

Georges Parent of France for the third year in succession won the world's championship in the professional paced 100 kilometers event, the meeting being held at Rome, Italy. Thorwald Ellegaard of Denmark was the victor in the 1000 meters race. In the amateur contests Leon Meredith of England won the 100 meters event and W. J. Bailey of the same country captured the 1000 meters contest.

The annual six-day race was held in Madison Square Garden, New York City, in December. The winning team was A. J. Clarke and Joseph A. Fogler. Few new important records were established in cycling in 1911.

CYPRUS. A Levantine island, nominally a part of the Ottoman Empire, but occupied by Great Britain. Area, 3584 sq. miles; population (1910), 261,587, exclusive of the military (Mohammedans, 56,586; Christians, 201,682; others, 3319). The census of April 2, 1911, showed a total population of 274,108. Capital, Nicosia, with (1911), 16,052 inhabitants; Larnaca has 9262; Limasol, 10,302. Elementary schools (1909-10), 580, with 29,576 pupils; government aid, £7084. Agricultural production (1909): 1,889,775 bushels wheat, 2,424,550 barley, 382,963 oats, 120,000 vetches. Other cultivated crops are olives, cotton, grapes, carob-beans, linseed, and fruits. Silk, cheese, wool, and hides are also produced for export. Livestock (1909): 67,709 horses, etc.; 62,694 cattle; 315,756 sheep; 31,690 swine; 277,357 goats. Mineral products: Asbestos, copper, gypsum, terra umbra, and marble. Imports (1909), £580,593; exports, £449,950. Tonnage entered and cleared, 785,034. Railways, 61 miles; telegraph lines, 240. Revenue (1909-10), £309,774; expenditure, £251,264; government grant, £50,000; debt, £286,742; annual tribute to the Port, £92,800. British high-commissioner (1911), Major Sir Hamilton John Gould-Adams.

CYRENAICA. See TURCO-ITALIAN WAR.

CYRENE. See ARCHAEOLOGY.

DAHLAK ARCHIPELAGO. See ERITREA.

DAHOMY. A French colony in French West Africa (q. v.). Area, 106,880 sq. kilo-

meters (41,266 sq. miles). Recently estimated population, 851,418 (375 French). Capital, Porto-Novo, with (1909), 25,383 inhabitants. There were (1909) 9 official schools, with 1323 pupils; 21 private, with 2129; 155 Mussulman, with 1558. The principal products are as follows (the values given are for 1909 exports): Palm kernels, 8,123,378 francs; palm oil, 6,448,083; corn, 700,016; live animals, 151,378; copra, 99,420; cotton, 130,078. Total imports and exports (1909), 14,215,996 and 16,350,614 francs respectively. Total railways, 268 kilometers; telegraph lines, 2113 kilometers; telephone lines, 98; number of post and telegraph offices, 25. Revenue in 1909, 3,469,679 francs; expenditure, 3,467,717. Lieutenant-governor (1911), H. Malan.

DAIREN (DALNY). See KWANTUNG.

DAIRY CONGRESS, INTERNATIONAL. See DAIRYING.

DAIRYING. In 1900 dairy cows constituted about one-fourth of the total number of cattle in the United States, but according to the preliminary statement of the Thirteenth Census there has been a constant increase since that time, so that cows now constitute about one-third of the total number. The increase during that period was over twenty per cent., whereas there was a slight decrease in cattle other than dairy cows. The causes of this change were the increase in consumption of milk, the cutting up of large ranges, the increased cost of feeds, which added materially to the cost of raising beef, so that the balance of profit was swung in favor of the milch cow instead of the steer. The State of New York leads in the number of cows, having a total of 1,508,672. Wisconsin is a close second, and Iowa third.

For further statistics on cattle, see AGRICULTURE.

The retail price of milk and its products has continued to advance for several years, but not in proportion to the constantly increasing cost of production. The labor problem, the feed bill, the more stringent regulations governing the production and sale of milk and its products, together with a drought for several successive years in the dairy districts, have contributed to decrease the normal profits of the dairyman. The demand for certified milk is a growing one in all our centres of population, and in spite of its high price it still remains an economical food when compared with the price of meat and many other common articles of diet.

The output of butter in 1911 has enlarged and higher prices have been obtained in the Elgin district than have been recorded for twenty years. As a result of State legislation and official inspection there has been an improvement in the quality of milk each year.

DAIRY SHOWS. Public interest has been aroused by many organizations, such as the National Dairy Show, which held its sixth annual exhibition in Chicago in October, and set a milestone in the progress of the industry. Over 1000 specimens of the leading dairy breeds were shown, and the exhibits of dairy machinery and appliances excelled those of previous years. National, State, and city governments furnished many excellent exhibits in connection with the inspection of milk and milk products. A feature of the show was the attendance of the President of the United States, who gave a brief address, in which he commended the scope of the enterprise and emphasized the importance of the dairy industry.

The students' judging contest attracted much attention, and teams from ten institutions competed. For the first time an International Dairy Show was held at Milwaukee. Among the features were 500 entries of dairy stock, extensive machinery exhibits, a model creamery operated by the dairy division of the Department of Agriculture, a cheese factory fitted up with modern machinery, an interstate butter contest, a demonstration herd showing groups of cattle fed in different ways, a child-welfare exhibit, and many other features of interest to the dairy industry.

The Philadelphia Milk Show, under the lead of the medical men of that city, was perhaps from an educational standpoint the most important exhibition of the kind ever held. Special days were set aside for school children, who visited the show in thousands to witness the picture shows, which illustrated the importance to the welfare of the community of a pure milk supply. The educational exhibits served to portray the conditions relative to the care of cows, the process of milking and the handling of milk on the farm, transportation, distribution of milk, and its uses as a food. The commercial exhibits included those submitted by any individual or company dealing in milk or milk utensils for commercial profit. There were also many meetings of dairymen, scientists, and officials, where problems connected with the industry were discussed.

BREEDING. The circuit breeding with milking Shorthorns at the Minnesota experiment station, conducted in cooperation with the Department of Agriculture, has given such good results in raising the standard of milk and milk fat that similar work has been conducted with Holstein cattle in North Dakota. The general plan of operation is to enlist all cows of desirable conformation and breed, using the yearly records of production as the basis of selection. All cows which do not furnish a profit are discarded, and those finally selected are bred to sires owned by the experiment station. The sires were collected from herds that had been systematically bred and selected for a combination of profitable dairy production and desirable conformation from the beef standpoint. They are the product of dams with yearly records of from 10,000 to 18,000 pounds of milk and combined with this have the ability to lay on flesh when dry and to obtain weights from 1400 to 1600 pounds. All heifer calves from approved dams have been raised and will be tried out in the first lactation period. The bull calves are raised to eight or ten months of age, and divided into three classes, reserved, approved, and rejected. The sires reserved for the circuit are offered for sale to other members of the association for use in supplying new herds taken into the circuit, and those that are approved are sold to the breeders in the usual way.

The dairy industry has been growing rapidly in the Pacific Coast States, where in California alone the output of butter has increased threefold the last ten years. Throughout all the southern United States increased attention is being given to dairying, owing in large part to the efforts of the State and federal departments of agriculture.

SANITARY MILK. Experiments in the production of sanitary milk have been carried on at many of the State experiment stations. The results have thrown a great light on the sources

of the contamination of milk and methods of preventing. A recent report from the West Virginia station shows that the germ content of milk was increased by passing over the milk cooler. A steam-tight compartment to enclose the cooler and bottling machinery was then constructed in the form of a box, with doors convenient to operate. It was found that after turning live steam into the enclosure for fifteen minutes the cooler ceased to become a source of contamination. Sterile water allowed to flow over the cooler contained on an average: two bacteria per cubic centimeter, but when the cooler was left open and merely washed and scalded the average number was 11,400 per cubic centimeter. In a number of cases it has been found that the sanitary condition of milk has been improved by offering the dairyman an extra price for his milk, provided it came up to certain requirements. See **SANITATION**.

BUTTER AND CHEESE. An investigation of butter by the Department of Agriculture has shown that twenty parts of metal salt to 1,000,000 of butter distinctly influenced the flavor of butter, copper being more active than iron, and that when oxygen is run through a flask of milk containing metal salts, a strong odor is produced in a short time. These facts lead to the conclusion that the principal changes in storage butter are due to the catalytic action of metallic salts, produced by the acid content of cans, vats, and other containers and inducing an oxidation of some constituent of butter.

In the work with cheese it has been found that cheese without gas holes other than the usual eyes can be made from very gassy milk by inoculating with *Bacillus bulgaricus*. A study of the bacterial flora of imported and domestic Swiss cheese showed that the cheese contained two varieties of the *Bacillus bulgaricus* type. Chemical work in connection with Swiss cheese has established the fact that the first proteolytic change in the ripening of Swiss cheese is the formation of a substance soluble in salt solution.

HOMOGENIZED MILK. Homogenizing milk by treatment which breaks up the fat globules is a new method of treating milk, which seems to be of increasing importance. This subdivision is accomplished in various ways. One method is by forcing the milk by the aid of pumps through a metallic filter and then through capillary tubes. Homogenizing prevents the milk from creaming and it will keep in this condition for a long time. It is used for feeding children, for export, and for making ice-cream. The principal disadvantage perhaps is that it may tempt some unscrupulous dealers to incorporate foreign fats.

VARIOUS EXPERIMENTS. The Wisconsin experiment station has discovered a method by which a palatable cheese can be made from buttermilk, which has about the same food value as lean beef steak and can be produced for half the price. This cheese can be retailed in small packages or shipped in ordinary butter tubs. It can be kept for ten days at a temperature of about 55° F., or for longer periods if stored below the freezing point.

The Commissioner of Internal Revenue has ruled that the incorporation of more than sixteen per cent. of water in butter is not an accident, and such butter is considered adulterated by the federal authorities.

RECORDS. Among the important dairy records made during the year was that of Missouri Chief

Josephine, a cow calved and raised on the farm at the Missouri Agricultural College. She has produced 110.2 pounds of milk in one day, 17,008 pounds in six months, and 26,861 pounds in a year. The amount of solids in one year was equal to six carcasses of a 1250-pound steer. Dolly Dimple, a Guernsey cow, completed a third phenomenal milk record and holds the world's championship for three successive lactation periods. The Holstein cow, Pontiac Pet, made 37.67 pounds of butter in seven days.

FOREIGN COUNTRIES. The dairy industry in Canada has shown a remarkable development in the past few years. In the province of Saskatchewan alone there has been an increase of over 300 per cent. in the output of butter, due to the policy of the government in centralizing the creameries at the most promising point. This has been a difficult year for the dairymen in England, owing to burned up pastures, the small yield of hay, the advanced rates on concentrated feeding stuffs, and more stringent dairy laws. A very thorough clean milk crusade was carried on at Liverpool by means of distributing leaflets on the care of milk to farmers, milk dealers, and consumers, and it is proposed to teach the subject of pure milk in the elementary schools. Owing to the railroad strike the milk trade in England suffered somewhat, but much less than other commodities. Many tons of cheese were lost owing to the delayed market, and in some cases a supply of fresh milk for infants could not be secured.

The French government is encouraging co-operative creameries and cheese factories by granting loans free of interest, the amount to be limited to about twice the paid-up capital and the time limit twenty-five years. Under this system 119 co-operative enterprises have borrowed \$1,000,000 since 1906. The import of French cheese into the United States has increased tenfold since 1900; the principal types imported are Camembert and Roquefort, although Brie and other types are imported to some extent. Investigations of the Department of Agriculture show that probably all these kinds of cheese can be produced in the United States.

A new commercial treaty between Sweden and Germany provides that pasteurized milk and cream may be sent to Germany duty free, while a duty of two cents per pound is applied to butter. Under these conditions the cream export from Denmark and Sweden to Germany is growing rapidly. The new Swedish law provides that all butter exported must be packed in receptacles provided on the outside with a permanent brand or label stating whether or not the butter contains more than sixteen per cent. of water.

In South Africa there has been a great expansion in the dairy industry in several years, and many dairy factories have been established, but the supply of butter has not been sufficient to meet the demand and considerable quantities are still being imported. Dairy interests have been active in New Zealand and the government has been increasing its force for inspecting dairies and herd testing, but its most important work is the grading and classification of butter and cheese for export. The production of condensed and powdered milk is also assuming great importance in New Zealand, both for home consumption and for export. The trade in condensed milk with China has continued to increase. Buyers have found that the condensed

skim milk is much cheaper, so a big trade has started up, but when the consumer realizes the difference between the condensed skim milk and the whole milk it may tend to react on the entire business.

The Fifth International Dairy congress was held in Stockholm in June. Papers on various topics were read by delegates from many countries. Among other things the congress passed a resolution to the effect that one of the best methods for improving milk supplies at practically no cost was the milk record and control associations, which reach their best development in Denmark, but are increasing rapidly in the United States.

The following books on dairying were published during the year: C. H. Eckles, *Dairy Cattle and Milk Production* (New York); Laura Rose, *Farm Dairying* (Chicago); B. Marquart, *Lehrbuch des Milchvieh Kontrollwesens* (Berlin); G. A. Witt, *Die heiztechnischen Winrichtungen der Käseri* (Berlin); H. Weigmann, *Mykologie der Milch* (Leipzig); A. Monvoisin, *Le Lait, son Analyse, et son Utilisation* (Paris).

DAIRY SHOW, NATIONAL.

DALLAS. See TEXAS.

DAMON, WILLIAM EMERSON. An American naturalist and author, died December 1, 1911. He was born at Windsor, Vt., in 1838, and was educated at the Kimball Union Academy, Meriden, N. H. He came to New York City and entered the employ of P. T. Barnum as director of the aquarium at Ann Street and Broadway. He had taken a great interest in marine life and botany, and he persuaded Barnum to fit out expeditions to bring fish from Honduras and Bermuda. When this museum was burned in 1866, another aquarium was started at 35th Street and Broadway. Mr. Damon had much to do with the opening of the great public aquarium now in New York City. He was also a collector of shells. He wrote a work entitled *Ocean Shells*. For many years he was connected with the firm of Tiffany and Co. He was a member of several learned and scientific societies.

DAMROSCH, WALTER. See MUSIC.

DAMS. During 1911 the failure of several large dams, attended in one case by great loss of life and property, aroused general attention to the condition of such works in the United States and the need of proper State supervision of their design, construction, and maintenance.

AUSTIN DAM FAILURE. The most serious of these disasters, involving as it did a loss of life of eighty-five persons, was the collapse of the concrete dam of the Bayless Pulp and Paper Co. on Freeman's Run just above the village of Austin, Pa. The water thus released swept down the narrow valley in which the villages of Austin and Costello, one and one-half and three miles respectively below the dam, were located, carrying death and destruction in its course. Previously, on January 23, 1910, this dam had failed to withstand a flood that while doing serious damage to the structure and leaving it seriously impaired, nevertheless had not been attended by disastrous results. It was a reinforced concrete structure crossing the valley where it was about 350 feet in width, and was designed to impound 200,000,000 gallons of water, having a depth of forty-two feet to the level of the spillway, with two and one-half feet free board. The concrete structure, which was thirty feet in



Photograph by Anschutz, Keokuk

THE KEOKUK DAM ACROSS THE MISSISSIPPI RIVER

DOWN-STREAM FACE OF THE DAM LOOKING TOWARDS ILLINOIS, DECEMBER 21, 1911. THIS MONOLITHIC DAM WAS BEING CAST OF CONCRETE IN STEEL FORMS BY USING A CANTILEVER TRAVELER CRANE. THIS IS SUPPLIED BY A THREE-TRACK RAILROAD ON TOP OF THE STRUCTURE

Courtesy of the *Review of Reviews*

width at the bottom, and two feet five inches at the top, was founded on a solid stratum. The dam which was 554 feet in length on top was built of cyclopean concrete in which large quarry stones were embedded. It was built below an older dam so as to increase the volume of water impounded, and was begun in May and finished about December 1, 1909. On January 22, 1910, part of the earthwork below the dam was carried away and water was found coming from behind and under the dam. On the following day the middle section slid out at the bottom eighteen inches, and at the top about thirty-one inches, while cracks developed on the down-stream face. The dam continued to overflow, but the movement ceased and the pressure was relieved by blasting out a section of the dam on the west side and finally emptying the dam.

While some radical recommendations for strengthening the structure and cutting off percolation were made, nothing but temporary repairs were made, and in this condition the dam remained until September 30, when full to overflowing from the heavy rains the entire structure collapsed, four-fifths of the entire length being broken into seven large fragments, most of which remained vertical.

The breaking of the concrete structure was complete. The two largest fragments near the middle of the dam were shifted fifteen to twenty-five feet down stream. It was but the continuation of the slipping of January, 1911. In fact, this was the conclusion reached at the coroner's inquest, when with the assistance of expert engineering witnesses the design, construction, and failure of the dam were investigated with great care. It was found "that the failure of this dam was due to sliding of the concrete structure on its foundation, as a result of faulty foundation, faulty design, faulty construction, and faulty operation." The indictment of the officers of the paper company followed.

FAILURE OF BLACK RIVER DAMS. A failure occurred in October on the Black River in Wisconsin, involving the carrying away of embankments which formed in part the Hatfield and the Dells reservoirs. This failure involved in either case the earthen embankments, or side walls, which formed the boundary of the reservoirs, and the flow of the river was carried around instead of over the spillway as designed. The failure of the upper dam was responsible for the breaking of the lower dam embankment and was due to abnormal rains by which the river and reservoirs were swollen; the waters level in the lower lakes raising above the dikes on either side. The Hatfield dam, which formed a reservoir with an area of 9000, acre feet consisted of a central or concrete spillway section 490 feet long, with a maximum height of forty feet, at each end of which were heavy abutments and earthen dikes. It was built in 1907-8. The embankment on the west side was about 4000 feet long, but very low for most of its length. Only about 150 feet of this dike were washed away. The east dike had a top width of sixteen feet and was 1150 feet long, with a maximum height of twenty-six feet, its crest being twelve feet above the crest of the dam. Extending downstream from the dam about 500 feet of the portion adjacent to the track was washed away and a crevasse formed. Some four miles above

the Hatfield dam was a larger reservoir known as the Dells and built in 1910. It was formed by a masonry dam 260 feet long of the same type of cross section and provided with a dike at the west end. The maximum height was thirty feet, and it impounded 11,000 acre feet of water. The dike of this reservoir was six feet higher than the crest of the dam. The most serious result of the failure of these Black Run reservoirs occurred at Black River Falls, where the business portion of the town was almost completely destroyed by the flood stream which was backed up by a massive concrete dam that remained intact.

MOVABLE WICKET DAM. On July 25, 1911, was opened for service the largest movable wicket dam in the world, on the Ohio River near Cincinnati, after having been under construction some six years at a cost of \$1,500,000. It is built entirely of concrete and steel, 60,000 cubic feet of the former material being used in the construction. It is known as Dam No. 37, or the Fernbank dam, and was to be used as a type of construction in the Ohio River in making that stream navigable the entire year from Pittsburgh to Cairo. The dam consists of a series of movable hinged wickets mounted in a long line on the river bed. When the river is high and there is no need of maintaining an artificial stage of water, the wickets are moved back flat on the bed of the river and boats pass freely over them. When, however, the river is low, these wickets are raised so as to impound the water above the dam, and boats must pass through the locks.

KEOKUK DAM. During the year an important dam across the Mississippi River between Keokuk, Iowa, and Hamilton, Ill., was in course of construction at the Des Moines rapids. This dam was built to raise the water level thirty-five feet, and supply power for a hydro-electric plant with a capacity of 300,000 horsepower. The main dam is 4570 feet in length from one shore to the power house, on the Keokuk side, which is parallel with that shore, and extends for 1700 feet in length. There is a lock for the river steamers between this power house and the shore and also the forebay. The dam is of the bridge type, thirty-five feet in height, with arches of thirty feet span between piers six feet wide. The arches are filled with concrete to twenty feet below the crown, and steel gates sliding vertically on the face of the bridge close the upper space of each arch. In the power house will be located fifteen turbines each direct-connected to a 7500 kilowatt generator. These generating units are ranged in line in the power house and space was left for thirty eventually.

HAUSER LAKE DAM. A notable concrete dam was built eighteen miles below Helena, Mont., across the upper Missouri River, taking the place of a steel frame structure on a concrete base which failed April 14, 1908. This new dam provided power for a large hydro-electric station. It was completed on May 21, 1911, and its construction was attended by many extraordinary difficulties, as new problems were continuously presented to the engineers. The dam itself is of the gravity type, and contains 85,000 cubic yards of concrete. It is 490 feet long, 132 feet high at the deepest part, and eighty-five feet thick at the base. The early construction was made unusually difficult owing to the wreckage of the former steel struc-

ture, which was entangled in the boulders at the dam site. See also **AQUEDUCTS, PANAMA CANAL, and WATER SUPPLY**; and, for Roosevelt Dam, **ARIZONA**.

DANA'S OPERATION. See **RHIZOTOMY**.

DANBURY HATTERS' CASE. See **BORCOTT**.

DANDY, GEORGE BROWN. An American soldier, died January 14, 1911. He was born at Macon, Ga. in 1830, and was educated in private schools in New Jersey, to which State his family had removed when he was still young. In 1847 he enlisted for the Mexican War and served until its close. He began the study of medicine, but left it to enter the United States Military Academy, from which he graduated in 1852. At the beginning of the Civil War he was first lieutenant in the Third Artillery. He was made colonel of the 100th New York Infantry in 1862, and in 1865 was brevetted brigadier-general for services in the field. He was honorably mustered out of volunteer service in 1865. In 1875 he was appointed major and quartermaster-general in the regular service, lieutenant-governor in 1887, and was retired in 1894. He was advanced to the rank of colonel, retired, by the act of April 23, 1904. He served in several expeditions against the Indians in the west. He built Ft. Phil Kearney at the base of the Big Horn Mountains in 1866, and Ft. Abraham Lincoln, North Dakota, in 1873-75.

DANGEROUS TRADES. See **CHILD LABOR**.

DANISH WEST INDIES. A Danish colony composed of three West Indian islands: St. Croix (84 sq. miles; population in 1911, 15,467); St. Thomas (33; 10,678); St. John (21; 941). Sugar cane, cultivated by the free negroes who form the majority of the population, is the principal product. Trade with Great Britain in 1908: imports £202,673, exports £212,147; with Denmark, £55 and £1800. Governor (1911), P. C. Limpricht.

DARTMOUTH COLLEGE. An institution of higher learning at Hanover, N. H., founded in 1769. The students enrolled in the various departments in 1910-11 were 1306. The faculty numbered 112. During the year the faculty lost by death one member, and by resignation eleven. There were appointed twenty-eight new members in the faculty. The most notable benefaction received during the year was the Edward Tuck gift of \$400,000 to apply to the improvement of the existing scale of salaries of the faculty of the college. A new building, known as the Parkhurst administration building, was erected during the year. The productive funds of the college amount to \$3,500,000 and the income to about \$380,000. The library contains about 100,000 volumes. The president is Ernest Fox Nichols, LL. D.

DATE INDUSTRY. See **HORTICULTURE**.

DAVIDSON, GEORGE. An American geodist, astronomer, and educator, died December 1, 1911. He was born in Nottingham, England, in 1825. In 1832 his parents removed to the United States and he was educated in the public and high schools of Philadelphia, studying afterwards at Santa Clara College and the University of Pennsylvania. From 1845 to 1895 he was a member of the United States Coast and Geodetic Survey. He was engaged in geodetic field and astronomical work in the Eastern States from 1845 to 1850 and from 1850 to 1895 in the coast survey work of California,

Oregon, Washington, and Alaska. After serving as honorary professor of geodesy and astronomy at the University of California he was, in 1898, made professor of geography in that institution. He served as expert at the United States Mint at Philadelphia and San Francisco in 1872, 1885 and 1886. In 1873-4 he was a member of the United States Irrigation Commission which made investigations in India, Egypt, and other countries. He was a member of the United States Advisory Board of Harbor Improvement at San Francisco from 1873 to 1876. In 1874 he was in charge of the Transit of Venus Expedition to Japan and in 1882 headed an astronomical expedition to New Mexico. From 1888 to 1890 he was a member of the Mississippi River Commission. He served as special agent of the United States at the Ninth International Geodetic Congress at Paris in 1889. He was a member of many learned and scientific societies, both American and foreign. He published over 260 papers and volumes on astronomy, engineering, navigation, and geography.

DAVIDSON, RANDALL THOMAS. See **LITERATURE, ENGLISH and AMERICAN, Religion**.

DAVIES DIRECT PRIMARY LAW. See **MAINE**.

DAVIS, R. H. See **LITERATURE, ENGLISH and AMERICAN, Fiction**.

DAVIS, ROBERT. An American political leader, died January 9, 1911. He was born in County Carlow, Ireland, in 1848, one of eleven children. In the same year he was brought to the United States by his mother. He attended the common schools, but upon the death of his father in 1858 was obliged to leave school to assist his mother. As soon as he had become of age, he entered politics. He served in several minor offices and in 1886 was elected sheriff of Hudson county, N. J. This office carried with it great powers and during his term Davis established the foundation of his future leadership. He increased his popularity by the methods common to political leaders of his type and in 1892 became the undisputed leader of the Democratic party in Jersey City and one of the powers in Democratic politics in the State. His candidates were defeated in 1901, but he returned to power in 1907 with the election of his candidate for mayor. Through his connection with politics he amassed a large fortune. He supported Woodrow Wilson for governor of the State in 1910 and to him was largely given the credit for Dr. Wilson's election.

DAYTON. See **MUNICIPAL OWNERSHIP**.

DEEP SEA EXPLORATION. See **ZOOLOGY**.

DEFERRED MESSAGES. See **TELEGRAPHY**.

DELAND, MARGARET. See **LITERATURE, ENGLISH and AMERICAN, Fiction**.

DELAWARE, POPULATION. The Thirteenth Census, taken in 1910, showed a population in the State of 202,322 as compared with 184,735 in 1900, a gain in the decade of 9.5 per cent. The only large city in the State is Wilmington, with a population in 1910 of 87,411 as compared with 76,508 in 1900. The capital is Dover which had in 1910 a population of 3720, as compared with 3229 in 1900.

AGRICULTURE. The Thirteenth Census, taken in 1910, includes the statistics of agriculture in the various States. The information gathered is of date April 15, 1910. At that time there were in the State 10,836 farms,

as compared with 9687 in 1900. The land area in farms was 1,038,806 acres, with improved land amounting to 713,538 acres. The average acreage of farms was 95.9. The total value of farm property in the State was \$63,179,201 as compared with a value of \$40,697,654 in 1900. Of the total number of farms 6301 were operated by owners and managers and 4535 by tenants. The farms free of mortgage numbered 3817 and those mortgaged numbered 2264. Interesting statistics were gathered in regard to the nativity of farmers. It was shown that the native white farmers of the State numbered 9504, the foreign-born white farmers, 410, and the negro and other non-white, 922. The total value of domestic animals and poultry on the farms of the State in 1910 was \$6,817,123 as compared with a value of \$4,111,054 in 1900, an increase of 65.8 per cent. The cattle numbered 3,451,791; mules, 764,133; swine, 337,910; sheep and lambs, 36,898. The total number of fowls of all varieties was 876,081, valued at \$560,146.

The following table gives the acreage, production, and value of the various crops in 1910 and 1911.

	Acreage	Prod., bu.	Value
Corn .....1911	195,000	6,830,000	\$4,044,000
.....1910	193,000	6,137,000	3,191,000
Wheat .....1911	113,000	1,887,000	1,698,000
.....1910	116,000	1,972,000	1,775,000
Oats .....1911	4,000	120,000	56,000
.....1910	4,000	135,000	58,000
Rye .....1911	1,000	15,000	14,000
.....1910	1,000	16,000	11,000
Potatoes ..1911	11,000	660,000	634,000
.....1910	11,000	1,123,000	680,000
Hay .....1911	72,000	a 63,000	1,418,000
.....1910	77,000	110,000	1,628,000

a Tons.

MINERAL PRODUCTION. The State does not produce a large amount of minerals. The total value of the mineral products in 1910 was \$664,073 as compared with \$876,501 in 1909. The most valuable product was stone, \$357,708. The clay products were valued at \$216,555. Other minerals produced were sand, lime, brick, and mineral waters.

MANUFACTURES. The Thirteenth Census included statistics for the manufacturing industries of the State. These are for the calendar year 1909 and the general results will be found in the table below. The largest number of men employed in any single industry are those engaged in the tanning of leather. These numbered 3045. The manufacture of foundry and machine shop products gave employment to 2210 wage earners; the paper and wood pulp industry to 1525; canning and preserving to 1369; shipbuilding to 1239, and lumber and timber production to 1174. These are the only industries giving employment to more than 1000 men, with the exception of those employed by the railroads in the car shops and elsewhere, who numbered 2210. Of all the persons engaged in the manufacturing industries of the State, 5.8 per cent. were officials, 5.7 per cent. clerks and 88.6 per cent. wage earners. Of the clerks employed, 81.8 per cent. were male and 18.2 were female, and of the wage earners, 82.4 per cent. were male and 17.6 per cent. were female. Of the total number employed 97.5 per cent. were

sixteen years old and over, and 2.5 per cent. were under sixteen. The largest number of women and children are employed in the canning and preserving industry. For the great majority of the wage earners employed in the manufacturing industries of the State the prevailing hours of labor range from fifty-four to sixty hours per week, or from nine to ten hours a day, only eight per cent. of the total being employed in establishments working less than nine hours a day, and only 4.5 per cent being employed in establishments working more than ten hours a day.

The following table gives a summary of the results of the census for the calendar years 1909 and 1904.

	1909	1904
Number of establishments.	726	631
Persons engaged in manufactures	23,984	20,567
Proprietors and firm members	722	641
Salaried employees	2,024	1,451
Wage earners (average number)	21,238	18,475
Primary horsepower	52,779	49,490
Capital	\$60,906,000	\$50,926,000
Expenses	46,958,000	37,362,000
Services	12,618,000	9,787,000
Salaries	2,322,000	1,629,000
Wages	10,296,000	8,158,000
Materials	30,938,000	24,884,000
Miscellaneous	3,402,000	2,691,000
Value of products	52,840,000	41,160,000
Value added by manufacture (value of products less cost of materials)...	21,902,000	16,276,000

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the Delaware Hospital in Wilmington, the Delaware State Hospital at Farnhurst, the Home for Aged Women of the County of New Castle at Wilmington. Important work is also carried on by the People's Settlement Association, which during the year was engaged in an effort to raise funds for a building to cost \$50,000. An effort is on foot to establish a State board of charities or some official supervision of charitable and correctional institutions. Such institutions are at the present time carried on through private auspices. On December 6 and 7 a State conference of charities was held to consider this and other questions. Through the associated charities of Wilmington a loan association was organized during the year, with a capital of \$10,000. Loans of five or ten dollars will be made for small business enterprises to encourage thrift, industry, and self-dependence. The city of Wilmington appropriated \$250,000 for park extension, including five playgrounds under municipal control and three under private management.

FINANCES. The report of the State treasurer shows receipts for the fiscal year 1911 from the general fund of \$629,312, from the school fund, \$174,115, and from the sinking fund \$12,805. The expenditures from the general fund were \$659,691, from the school fund \$174,490, and from the sinking fund \$12,989. The assets in excess of all liabilities at the close of the fiscal year were \$1,041,638. The principal sources of revenue for the general fund were from railroads, licenses, insurance companies, and banks.

The principal expenditures were for State departments, education, charities and corrections, public health, and highways. The school fund is divided among the public schools of the State. The sinking fund is made up by the receipts from the rental of oyster grounds and the licenses of the oyster beds, and the income from investments held by this fund. The bonded indebtedness of the State at the close of the fiscal year was \$826,785.

POLITICS AND GOVERNMENT

The legislature met in 1911 and passed several important measures. These are noted in the paragraph *Legislation*, below. As the term of Senator Henry A. Du Pont expired in 1911, it was necessary to choose his successor. A deadlock in the Senate, brought about largely through the efforts of State Senator Louis A. Drexler, prevented a choice of senator until several weeks had elapsed. Senator Drexler, on January 3, prevented the Senate from reorganizing by the employment of dilatory tactics. He gave as a reason for this that the Republican leaders had failed to elect him president *pro tempore* although they had promised to do so. After considerable delay the House and Senate were organized, and after many ballots Senator Du Pont was reelected after having been made the nominee of the Republican caucus on June 16.

The first factory inspection bill proposed in the State was introduced into the legislature. This provided not for general inspection, but for proper sanitary conditions, safe fire exits, and limited working hours for women employees. It provided also for a woman factory inspector and two unpaid assistants, all of whom were to be appointed by the Superior Court. In its passage through the legislature the bill was amended to apply to the telephone, restaurant, laundry, and candy business and also to the retail merchants and canneries. The bill passed both houses by unanimous vote, but in spite of protest of organizations formed to support it, Governor Pennewill allowed the thirty days after the adjournment to pass without his signature, thus bringing about the defeat of the measure.

On June 21, Judge Lanning of the United States Circuit Court ordered the dissolution of the so-called powder trust. There were no State elections held during the year.

LEGISLATION. The only important measures passed at the legislative session of 1911 include the following: Provision for the preparation and adoption of a new legal code; a uniform negotiable securities act; the establishment of a commission to form a child labor law and an employers' liability law.

STATE OFFICERS: Governor, Simeon S. Pennewill; Lieutenant-Governor, John M. Mendinghall; Secretary of State, Charles S. Richards; Treasurer, David O. Moore; Auditor, Theodore Townsend; Attorney-General, Andrew C. Gray; Commissioner of Insurance, Charles H. Maull; Commissioner of Agriculture, Oliver A. Newton—all Republicans, except Gray, Democrat.

JUDICIARY. Supreme Court: Chancellor, Charles M. Curtis, Republican; Chief Justice, James Pennewill, Republican; Associate Justices, Henry C. Conrad, Republican; Victor B. Woolley, Democrat; Herbert L. Rice, Republi-

can; William H. Boyce, Democrat; Clerk, Charles H. Le Fevre, Democrat.

STATE LEGISLATURE, 1911. Republicans, Senate, 9; House, 22; joint ballot, 31; Democrats, Senate 8; House, 13; joint ballot, 21. Majority, Senate, Republicans, 1; House, Republicans, 9; joint ballot, Republicans, 10. The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

DELAWARE. See **BATTLESHIPS**.

DELCASSÉ, THÉOPHILE M. See **FRANCE, History**.

DELOS. See **ARCHAEOLOGY**.

DE MORGAN, WILLIAM. See **LITERATURE, ENGLISH AND AMERICAN, Fiction**.

DENATURED ALCOHOL. See **ALCOHOL**.

DENMARK. A constitutional monarchy of northern Europe. Capital, Copenhagen.

AREA, POPULATION, ETC. Area, 38,985 sq. kilometers (15,062 sq. miles). Population with the Faeroes (1906), 2,605,268 (977,808 engaged in agriculture and forestry, 801,916 in business and industry, 247,130 in commerce, etc.). Census of February 1, 1911, returns a total population of 2,775,076 (1,346,869 males and 1,428,207 females). Copenhagen had (1911), 462,161 inhabitants (suburbs inclusive, 559,398); Aarhus, 61,755; Odense, 42,137; Aalborg, 33,449; Horsens, 23,843; Randers, 22,970; Reykjavik (Iceland), 11,593. Marriages (1910), 19,986; births, 77,080; deaths, 36,970; emigrants, 8890.

Elementary schools (1909), 3413, with 363,661 pupils. The secondary schools have an average annual attendance of 55,000. The University of Copenhagen has 95 instructors and about 2000 students. Primary education is free and compulsory. The Lutheran is the state religion; complete religious liberty prevails.

INDUSTRIES AND COMMERCE. The area (in hectares) sown to principal crops and the yield (in quintals) in 1910 and 1911 (preliminary), with yield per hectare in 1910, are shown below:

	Hectares		Quintals	
	1910	1911	1910	1911 per ha.
Wheat ..	42,000	42,000	1,238,187	1,287,683 29.4
Rye	275,000	275,000	5,079,627	5,011,427 18.5
Barley ..	233,000	233,000	5,198,669	5,367,988 23.3
Oats	403,000	403,000	7,197,998	7,889,786 17.9
Beets	23,000	24,900	7,384,795	6,941,707 321.1

Livestock (1909): 534,680 horses, 2,243,889 cattle, 726,027 sheep, 1,466,932 swine, and (1903) 38,984 goats. Sugar mills (1909), 7; production, 62,760 tons of beet sugar. Margarine and oleomargarine factories, 19; production, 30,310 tons. Distilleries, 28; brandy output (100°), 14,762,927 liters. Excisable beer produced, 22,447,859 gallons. Fisheries products, £674,098.

The general and special trade for three years is given in kroner as follows:

	1908	1909	1910
Imports, gen....	711,608,000	725,037,000	.....
" spec....	550,739,000	566,782,000	570,000,000
Exports, gen....	616,943,000	608,081,000	.....
" spec....	439,518,000	443,822,000	480,000,000

Details of the special trade for 1909 are as follows:

Imports	1000 kr.	Exports	1000 kr.
Cereals	94,854	Butter	180,301
Oilcake	57,227	Meats	119,134
Coal	44,337	Animals	42,051
Ironwares	27,337	Eggs	26,121
Timber	19,581	Hides	14,559
Woolens	17,195	Fish	6,953
Other textiles	17,117	Ironwares	5,942
Hides	10,094	Barley	3,978
Coffee	10,020	Ships	3,900

Principal countries of origin and destination (1909), general trade; Germany, imports 253,039,000 kroner and exports 133,051,000; Great Britain, 113,502,000 and 329,567,000; United States, 86,196,000 and 31,126,000; Russia, 82,248,000 and 29,839,000; Sweden, 58,274,000 and 39,542,000; Netherlands, 23,094,000 and 2,099,000; France, 16,264,000 and 1,026,000; Norway, 10,674,000 and 18,600,000; Belgium, 10,417,000 and 1,981,000.

Shipping (1910): 34,588 vessels, of 3,782,165 tons, entered; 34,447, of 1,357,785, cleared; 95,470 coasting vessels, of 1,745,533 tons, entered and 95,052, of 1,734,879, cleared. Merchant marine (December 31, 1910): 3648 vessels of 521,451 registered tons (1397, of 420,829 tons, steamers).

COMMUNICATIONS. Length of railways in operation (end of 1909), 3403 kilometers. Cost of construction to March 31, 1910, 250,318,835 kroner. State telegraph wires (March 31, 1911), 12,842 kilometers; offices, 172. Telephone wires, 25,368 kilometers. Post offices, 1086.

ARMY. Military service in Denmark is obligatory on all able-bodied men who have attained the age of twenty-two, liability for service being eight years in the first line of the army and eight years in the second. In 1911 the contingent of recruits was 8000 for the infantry, 600 for the cavalry, 1600 for the artillery, and 300 for the engineers. These recruits serve 165 days in the infantry, one year in the artillery, thirteen months with the technical troops, so that a force of 11,000 men with the colors is maintained. The organization in 1911, in accordance with the plans of reorganization adopted in 1909, consisted of 52 battalions of infantry, 31 in the line and 21 in reserve, instead of 44 as in the old organization; 12 squadrons of cavalry, instead of 15, 24 field batteries instead of 16, 18 coast batteries, 12 in the line and 6 in reserve, and 12 companies of engineers in place of 9. The military defense scheme provided for the strengthening of the sea and coast defenses at Copenhagen, and the erection of new forts, the land defenses remaining in their present condition awaiting later developments. The military strength in 1911 was estimated at 830 officers and 13,000 men on a peace footing, and 1250 officers and 50,000 men on a war basis. With the complete execution of the military scheme the force available on mobilization should amount to 83,000 men, of which 58,500 would be infantry, 5000 cavalry, 6800 field artillery, and 8600 fortress artillery, or a total effective of about 70,000. A decree of August 17, 1911, provided for the command of the army in time of war or mobilization in accordance with the reorganization law of September 30, 1909. By this decree the general commanding the section to the east of the Grand Belt receives the title of general-in-chief in time of war, and has charge of the defense of the main-

land, and especially of the defense of Copenhagen. The general commanding the second division directs operations to the west of the Grand Belt in accordance with the general plan of the commander-in-chief. Detailed provision was made for the organization of the staff, and for the responsibility of the various officers of the army and navy, the sea defenses in Denmark being centralized under the minister of defense, together with the army.

FINANCE. The unit of value is the krone, worth 26.8 cents. Revenue and expenditure for three years are given in kroner:

	1908-9	1909-10	1910-11
Revenue	93,359,181	135,248,843	142,102,605
Expenditure	107,996,089	133,179,461	139,161,744

The budget for 1911-12 is estimated as follows: Revenue, 95,491,250 kroner (indirect taxes, 58,552,600; direct taxes, 18,879,100; receipts from capital, 6,468,989; interest, etc., 4,917,144; lottery, 1,540,000; posts and telegraphs, 1,260,160; domains, 1,037,589). Expenditure, 116,894,771 kroner (war, 22,420,295; railways, etc., 13,375,554; interior, 13,263,482; navy, 11,273,096; debt, 9,427,270; justice, 8,904,360; finance, 7,427,204; agriculture, 5,228,224; pensions, 4,996,100; public works, 3,161,907; civil list, etc., 1,155,200; foreign affairs, 973,925; Rigsdag and Council of State, 936,918; commerce and navigation, 574,131. The public debt stood, March 31, 1911, at 335,860,002 kroner.

GOVERNMENT. The executive authority is vested in a king, aided by responsible ministers; the legislative, in the Rigsdag (composed of the Landsting and the Folkething). Frederick VIII., born June 3, 1843, married (1869) to Princess Louisa of Sweden and Norway, succeeded to the throne January 29, 1906. Heir-apparent, Prince Christian, born September 26, 1870. The ministry, constituted July 5, 1910, was in 1911 as follows: President of the Council and Minister of War and Marine, K. Berntsen; Foreign Affairs, C. W. Count of Ahlefeldt-Laurvig; Agriculture, A. Nielsen; Worship and Instruction, J. Appel; Public Works, T. Larsen; Interior, J. Jensen-Sønderup; Finance, N. T. Neergaard; Commerce and Navigation, O. H. V. B. Muus; Justice, F. T. von Bülow; Minister for Iceland, Bjørn Jonsson.

DENSMORE, EMMET. An American physician and inventor, died in February, 1911. He was born in Blooming Valley, Pa., in 1857, and was educated at the Allegheny College and in medicine at the University Medical College of New York University, from which institution he graduated in 1885. He was associated with his brothers in the development and production of petroleum at Oil Creek, Pa., from 1861 to 1864. He was the inventor of the first tank cars by which oil was shipped to seaboard. He was associated with his brother James in developing the first successful typewriter invented by C. Latham Sholes and afterwards known as the Remington. He afterwards cooperated with his brother, Amos, in the development of the Densmore typewriter. He was the author of *How Nature Cures*; *Sex Equality*; and *Introduction to the Arcana of Nature*.

DENTAL SCHOOLS. See UNIVERSITIES AND COLLEGES.

DENVER. See COLORADO, and MUNICIPAL REFORM.

DE PAUW UNIVERSITY. An institution of higher learning, founded in 1837 at Greencastle, Indiana. The number of students enrolled in the various departments of the university in 1910-11 was as follows: Asbury College of Liberal Arts, 655; Music and Art Academy, 85. The faculty numbered 40 in the College of Liberal Arts, 12 in the College of Music, 3 in the department of art, and 16 in the academy. During the year Professor Henry Boyer Longden was given a year's absence for study in Germany. Several additions were made to the faculty. An effort is being made to increase the endowment of the university, and it is meeting with great success. The general education board has offered to give \$100,000 on condition of an additional \$400,000 being raised. It was expected that this addition would be completed by December 31, 1911. The productive funds of the university amount to \$576,694 and the income to \$78,881. The library contains about 35,000 volumes. The president is F. J. McConnell, LL. D.

DEPOSITS, GUARANTEE OF. See **BANKS AND BANKING.**

DESIGN, NATIONAL ACADEMY OF. See **PAINTING.**

DESTROYER. See **NAVAL PROGRESS**, paragraph *Propulsion.*

DETROIT. See **BUILDING.**

DEUTSCH TAXICAB. See **AERONAUTICS**, *Carrying Capacity.*

DEVINS, JOHN BANCROFT. An American clergyman and editor, died August 26, 1911. He was born in Brooklyn in 1856 and graduated from New York University in 1882. In 1888 he was ordained to the Presbyterian ministry and was pastor of churches in New York City from that year until 1905. Previous to his ordination he had done journalistic work and was a member of the staff of the *New York Tribune* from 1880 to 1888. From 1890 to the time of his death he was managing editor of the *New York Observer*. He organized many social and philanthropic societies, among them the Federation of East Side Workers and the New York Employment Society. He was a member of many commissions for religious and social work. He was the author of *The Church and the City Problem* (1895) and *An Observer in the Philippines* (1905). He also wrote several well-known hymns and assisted in the preparation of the *Life of Dwight L. Moody*. In 1903-4 he made a tour of the world.

DE VYVER, AUGUSTINE. An American bishop of the Roman Catholic Church, died October 16, 1911. He was born in 1844 at Heisdonck, Belgium. His early studies were made in the city of Saint-Nicolas. He was raised to the priesthood at Brussels in 1870. He removed to the United States, and in 1899 was bishop of the Catholic diocese of Richmond, Va.

DIAMONDS. See **MINERALOGY.**

DIAZ, PORFIRIO. President of the Republic of Mexico until May 25, 1911. He was born in Oaxaca in 1830, the son of a father of pure Spanish blood and of a mother who was the daughter of a Spaniard and an Indian woman. When the boy was three years of age the father died, leaving the family in want. From his early youth he studied for the priesthood, but gave up the idea of that career and engaged in the study of law. This action was taken largely as a result of his acquaintance with

Juarez, the Indian, who later became president of Mexico. On the outbreak of the war with the United States Diaz declared himself against the continuance of Santa Ana in power and he was ordered arrested. He fled to the mountains and joined a band of Indian revolutionists. He became commander of the band and won a battle, but his forces were dispersed and Diaz remained in hiding until Santa Ana was superseded by General Alvarez, leader of the Liberals, in 1855. In the year previous he had commanded a battalion under Alvarez in a contest against Santa Ana. He was made sub-prefect of Ixtlan by President Alvarez, and he at once began organizing the Indians in his district into an army. In November of 1855 a revolution was started and Alvarez resigned the presidency. General Jose Maria Garcia became an opponent of the Liberals, with whom Diaz was identified, and the latter with his Indians attacked him while Garcia was on his way to attack Oaxaca. Garcia was induced to reëmbbrace the Liberal cause. Diaz's next military enterprise was an attempt to put down the uprising in Tehuantepec. He was here shot through the body, but recovered. At the age of 28 he was made lieutenant-colonel and when the revolution was put down and Juarez became president he was elected a deputy to the national Congress. He soon resigned from this body, however, and returned to the army. At the time of the attempt of Napoleon III. to establish an empire in Mexico, Diaz was engaged in fighting the rebel Marquez. He won a victory over this leader at Jalatlaco. After taking part in the battle of May 5, which was disastrous to the French, he was sent to Jalapa to take charge of the government and to be military commander of the state of Vera Cruz, which at that time was occupied by the French army. At this time he had not yet reached his 32nd year. During the French intervention he won a high reputation as one of the most skillful and courageous of the patriot leaders. After the battle of Santa Ines, he was made brigadier-general. Shortly after this engagement he was captured by the French, but escaped and joined President Juarez in the north, taking command of a native body of troops and reorganizing them. In 1863 he was made a general of division, the highest rank in the Mexican army. In the following year, however, he was obliged to surrender to the French General Bazaine and was imprisoned. He once more escaped and began a third campaign against the French invaders, but by this time the interference of the United States had compelled the withdrawal of the French troops. Diaz captured the Emperor Maximilian and marched into the capital in 1867. He was an unsuccessful candidate for the presidency against Juarez, and upon his defeat retired to his farm. In 1871 he organized a rebellion and took the field against the government. His brother Felix was killed and Diaz fled to the mountains. He had resumed the fight when Juarez died and Diaz recognized his successor, Lerdo de Tejada. In 1874 he formed a party in Congress and attempted to start a revolution against Lerdo. He was defeated and escaped to the United States. He returned to Mexico in 1876 and forming an army defeated Lerdo at Tocoac on November 16. In May, 1877, he became president.

Diaz's abilities as a ruler at once became evident. Order was restored in a remarkably short

time. He began the restoration of the country's credit and the wiping out of the bandits who infested the rural regions. In order to meet the payment of \$300,000 due to the United States he obliged the office-holders to do without their salaries and began an endeavor to interest United States financiers in the development of the country, particularly in the matter of railway building. As the constitution of Mexico provided that no man should hold the office of president for two consecutive terms, he was succeeded in 1880 by his close personal friend, General Gonzalez. Diaz himself became governor of Oaxaca. The credit of the country suffered under Gonzalez and Diaz was almost unanimously elected (1884) for a second term. The constitutional provision forbidding a second term, which he himself had caused to be passed, he now succeeded in changing and he continued in office term after term until his resignation in May, 1911. Diaz ruled Mexico with a firm hand and many charges were made against him of arbitrary conduct. He was in all essentials an absolute dictator, though under his administration Mexico became industrially prosperous. The abuses of his power became so onerous to the people that in 1910 a rebellion was started by Francisco I. Madero, one of the wealthiest capitalists of the country. This rebellion soon spread until it included nearly all the provinces of the republic. For the events which led up to the resignation of Diaz and brought about that event, see the political section of the article MEXICO.

DICEY, EDWARD. An English author and journalist, died July 7, 1911. He was born in 1832 in Leicestershire, England. He was educated at Trinity College, Cambridge, and in 1875 was called to the bar. He engaged in newspaper work and was connected for a time with the *Daily Telegraph*. From 1870 to 1899 he was editor of the *Observer*. Among his published works are: *Rome in 1860* (1861); *Cavour, a Memoir* (1861); *The Morning Land* (1870); *England and Egypt* (1884); *The Peasant State* (1895); and *The Story of the Khedivate* (1902).

DICKINSON, G. L. See LITERATURE, ENGLISH AND AMERICAN, *Religion*.

DIDYMA. See ARCHAEOLOGY.

DIESEL ENGINE. See NAVAL PROGRESS, *Propulsion*, and INTERNAL COMBUSTION ENGINE.

DIET, PRUSSIAN. See GERMANY, *History*.

DIETETICS. See FOOD and NUTRITION.

DINDINGS, THE. See STRAITS SETTLEMENTS

DIRECT ELECTION OF SENATORS.

See ELECTORAL REFORM.

DIRECT PRIMARIES. See ELECTORAL REFORM.

DIRIGIBLE BALLOONS. See AERONAUTICS and NAVAL PROGRESS, paragraph *Naval Aeronautics*.

DISCOUNT. See BANKS and BANKING.

DISEASES, OCCUPATIONAL. See OCCUPATIONAL DISEASES.

DISTILLED SPIRITS. See LIQUORS.

DOCKS AND HARBORS. UNITED STATES NAVAL DOCKS. During the year Dry Dock No. 2 at the Boston Navy Yard was enlarged, as was Dry Dock No. 3 at Norfolk. At the latter, the largest battleships in the United States, in existence, or contemplated, could be satisfactorily docked. During the year progress was also made on three large docks under construction at

New York, Puget Sound, and Pearl Harbor, all of which were expected to be completed in 1912, or soon thereafter. It was recommended by the Secretary of the Navy that the Dry Dock No. 1 at Pearl Harbor, 800 feet in length, should be increased to a length of 1000 feet, so as to accommodate the largest ships that could pass through the locks of the Panama Canal.

NEW YORK PORT FACILITIES. During the year the United States War Department gave permission for the temporary extension of the piers of the city of New York 100 feet beyond the line previously fixed by its engineers. This permission, which was revocable at the will of the War Department, made it possible to accommodate the White Star S. S. *Olympic*, and doubtless would be extended to other vessels as the occasion develops. During the year an extensive study of the dock accommodations of the city of New York was undertaken, and a project advanced by Dock Commissioner Calvin Tompkins for the construction of new docks and the general handling of the commerce of the port was under discussion. The facilities of New York harbor were far from ample, and it was proposed to construct marginal railways and freight yards to facilitate the transshipment of freight between railways and steamships. No definite decision was reached on this plan, which was under consideration by the Chamber of Commerce and the maritime interests, as well as by the city authorities at the close of the year.

ORE PIERS ON THE GREAT LAKES. Important piers were constructed on the Great Lakes for use in connection with the loading and unloading of iron ore. These docks were notable for their mechanical facilities for handling the ore. One of two large piers built during the year for shipping ore was built of steel, while the other was of reinforced concrete, in which the steel reinforcement formed a complete and self-supporting structure before the concrete was placed. This pier is 1200 feet in length, 60 feet wide, and has its rail level, from which the freight cars bringing the ore from the mines empty their contents into pockets, 75 feet above the water. The two rows of pockets number 200 in all, and there are two lines of track over each row. From the pockets, whose ore capacity aggregates some 60,000 tons, the ore is discharged direct into the hatches of steamers and barges. A new pier at Cleveland where the large ore barges and steamers are discharged was also built of concrete, 1000 feet in length, and carrying on its deck electric unloaders of the walking beam type which transferred the ore from the hold of the ship to a concrete trough extending the length of the pier. From this trough, by means of a traveling conveyor, the ore can be transferred from the ore trough to two stock piles 800 feet in length.

PORT OF MONTREAL. At Montreal, Canada, important harbor works were in course of construction, and many improvements were planned for the development of shipping facilities. There was under construction a new basin 1000 feet in length, 500 feet in width, and 30 feet in depth, which was to contain a floating dock able to accommodate vessels of 25,000 tons. A shipyard 35 acres in extent for the use of deep-water vessels was laid out by the Harbor Commissioners.

ROSYTH NAVAL DOCK YARD. The construction of the new British Naval Dock Yard at Rosyth on the north shore of the Firth of Forth was

put under way in 1909, and the work authorized by Parliament up to the end of 1911 involved an expenditure of between three million and four million pounds sterling. The main contract included the construction of basins, docks, and the reclamation of land available for future warehouses, repair shops, and other works and buildings required for the accommodation of a naval fleet. The Rosyth site includes an area of 1200 acres, with 200 acres of fore-shore. At the end of 1911 almost one-quarter of the original foundation of the big work had been completed so that the super-structural work could be prosecuted with rapidity.

PORT OF LONDON. At the beginning of 1911 the new port authorities of London submitted their first report in which a scheme for the improvement of the London docks and of the navigation of the Thames was outlined at an estimated cost of 14½ million pounds sterling. A period of twenty years will be required for the improvements, and the first work will be the erection of a new deep-water dock of 85 acres in connection with the existing Albert Dock. The estimated cost of the new dock was 2¼ million pounds sterling, and it was to be completed in five years. It was to have a depth of water 38 feet, and be 800 feet in length, 100 feet in width, and 45 feet deep on the sill. Further improvements were projected at other docks on the Thames, necessitated by the increased size of the vessels using them. Within twenty years there had been an increase in vessels over 500 feet in length from 11 to 234, and the average length of the 20 largest vessels was 700 feet. In order to maintain the position of London as a port, it was deemed necessary to increase the channel to a width of 1000 feet and 30 feet depth at low water on that portion used by the larger vessels, and on the part above as far as London Bridge narrowing to 450 feet in width and 14 feet in depth.

LIVERPOOL. Dredging continued during the years 1910 and 1911 in the Mersey so that the mean depth at low water through the bar channel was maintained at from 29 to 31 feet. The stone revetment on Taylor's bank, opposite Askew Spit, was finished at the end of the year 1911, and the dredging of the shoal for sea-going boats in this channel was begun again.

SOUTHAMPTON. The development of the port of Southampton continued during 1911, and in June a new dock 18 acres in extent was opened. This dock has a depth of 40 feet at low water and is able to accommodate such vessels as the *Olympic* and *Titanic*; in fact, being used by the former during the year. The dry dock at this port which was opened in 1907 was being enlarged to a length of 897 feet. Considerable shore property had been acquired for further dock developments.

BELFAST DOCK. In March, 1911, a new dry dock, which had been under construction for seven years, was completed, and the liner *Olympic* was docked in it. It was one of the largest dry docks in existence, being 850 feet in length by 100 feet in width, and capable of taking vessels of 45,000 tons and 34 feet draught. It was constructed on land reclaimed from the sea at a cost of over three-quarters of a million pounds sterling. Its concrete floor is 17½ feet thick, and the pumping machinery driven by engines of 3000 horsepower is capable

of pumping 23,000,000 gallons of water in 1½ hours.

BELGIUM. Considerable harbor improvement was undertaken on the Belgian coast during the year, with the aim of improving the approaches to the various ports. The two channels leading to Ostend were dredged, and a proposition to improve the approach to Antwerp by making a cut come across a bend in the river Scheldt below the city was approved by a special commission. Harbor improvements, including the construction of a dry dock for fishing vessels and the dredging of the channel, were also under consideration at Nieuport, and much work was done for deepening the waterway of the new channel up the Maas to Rotterdam. The reach between Poortervaren and the Hook of Holland was deepened, and an embankment on the left bank of the river opposite Maastricht was under construction.

RUSSIA. A new dry dock at Kronstadt which had been under construction by the Russian government for 3½ years was opened September 12. Its principal dimensions were, maximum length, 856 feet; serviceable length, 750 feet; width, 120 feet; depth of sill, 35 feet.

RIO DE JANEIRO. Substantial improvements at the harbor of Rio de Janeiro, Brazil, were reaching completion in 1911 in accordance with the plans proposed by the government commission appointed in 1903 to consider the improvement of the port. While Brazil has naturally a fine harbor, yet for many years large vessels had to employ lighters for discharging and loading cargo, and, consequently, it was decided to build quay walls 1100 feet in length, with a depth of water from 28 to 33 feet in front. These were constructed of concrete by the use of cofferdams and caissons. The port improvement included also the reclamation of a large area of low land and dredging.

ARGENTINA. At Buenos Ayres contracts were awarded for the construction of four new docks with quays of over three miles in extent. On these were to be erected warehouses containing 100 acres of floor space and 300 acres of land were to be reclaimed. Another important Argentine project was the construction of a new port in the Bay of Samborombam on the coast 150 miles south of Buenos Ayres. This involved the dredging of an approach 9½ miles in length, and increased depth of water. The work was being done for the Grand Central Railway Company of Argentina.

URUGUAY. At Montevideo, Uruguay, it was proposed to enclose the shore to the south of the city by an embankment 2½ miles in length, and thus reclaim 358 acres of land. The embankment is to afford an esplanade and the land thus formed is to be valuable for building.

DOLOMITE. See GEOLOGY.

DOMINICA. An island of the British West Indies; one of the presidencies of the Leeward Islands (q. v.). Area, 304½ sq. miles. Population, census of 1911, 33,863. Chief town, Roseau (about 6500). Imports, 1909, £128,779; 1910, £147,322. Exports, £102,339 and £112,111. Revenue, 1909-10, £39,521; 1910-11, £41,472. Expenditure, £41,860 and £39,050. Debt, 1911, £47,295. Administrator, 1911, W. Douglas Young.

DOMINICAN REPUBLIC. See SANTO DOMINGO.

DOMINGUEZ, JOSÉ LOPEZ. A Spanish statesman, former prime minister, died October

18, 1911. He was born in Marbella, Spain, in 1829 and received his education at the Artillery School at Segovia. At the age of 21 he received a commission in the Third Regiment of Artillery at Seville. In 1854 he joined O'Donnell in the revolution against Queen Isabel, and on its success received advancement largely through his connection with his kinsman, Serrano y Dominguez. On the outbreak of the Crimean War he was attached to the Spanish mission with the headquarters of the French army. In 1858 when O'Donnell became premier, Dominguez entered the Cortes. On the outbreak of the Italian War he was attached to the headquarters of Napoleon III. When this campaign was over he served as commander of a battery. In the Moroccan War he distinguished himself in several engagements. On his return he was reelected to the Cortes. In 1866 he signed the protest to the queen against the indefinite adjournment of the Cortes, and as a result suffered imprisonment. He was shortly afterwards implicated in a conspiracy against the government of Gonzalez Brabo and was sent into exile to the Canaries. He returned in time to take part as colonel of cavalry in the battle of Alcolea, where he was promoted to be brigadier-general. This victory and the flight of Queen Isabel left Serrano y Dominguez, now Duke de la Torre, master of the situation, and Dominguez remained with the latter as secretary during his regency. Upon the foundation of the republic he was made captain-general of Burgos and was later sent by Castelar against Cartagena, which was in the hands of the Federals. He took the town by assault and was promoted to be lieutenant-general. On the outbreak of the Carlist War he acted as chief of staff to the Duke de la Torre, and then went to Caledonia as captain-general and commander-in-chief. There, by defeating the Carlists, he saved that province for the government. Upon the restoration of the monarchy he returned to Madrid and accepted a seat in the Superior Council of War, retiring shortly afterwards on a pension. For thirty years following he devoted himself to active politics. In 1883 he was one of the creators of the Dynastic Left, whose programme was based on the guarantees of the constitution of 1869. He became minister of war in Herrera's government, and in Sagasta's government in 1893. In this office he carried out many reforms. In 1895 he was promoted to be captain-general. He became president of the Senate in 1905 and in the following year premier and minister of war. His ministry was short-lived, as the violence of his anti-church policy split the Liberal party. He resigned in November, 1906. He never again held office, though he continued to be the titular leader of the democratic party, of which Señor Canalejas was the guiding influence. He lived under four sovereigns, three regencies and a republic.

DOYLE, Sir ARTHUR CONAN. See LITERATURE, ENGLISH AND AMERICAN, Fiction.

DOUBINE. See VETERINARY SCIENCE.

DRAINAGE. The practical exhaustion of free land in the western part of the United States has turned attention to the unproductive land in other sections of the country, bringing about, in the last few years, great activity in the drainage of swamp lands and the protection of overflowed lands. It is estimated that there are in the United States about 70,000,000 acres of such land which can be reclaimed for agri-

culture. While the United States is experiencing greater activity in drainage work than any other country in the world, much work is being done in other countries. In Italy, in the eastern part of the valley of the Po, large areas are being drained by local districts with the aid of the Italian government. This land requires both protection and drainage. In Egypt the increased water supply made available by the Assuan dam has led to serious injury of large areas in the Nile delta by the rise of the ground water, greatly reducing the area on which cotton can be grown. For the relief of these conditions drainage is necessary and is being undertaken. Russia is taking an active interest in draining its wet lands, of which there are several million acres, chiefly in the northern part of European Russia. While almost every State in the United States has some swamp lands which can be drained, the larger part of these lands lies in two districts—the Mississippi valley, from Minnesota to Louisiana, and the coastal plain along the Atlantic Ocean, from the mouth of Chesapeake Bay to the lower end of the peninsula of Florida.

Much of the land of the upper Mississippi valley has been protected from overflow and drained for many years, and the greatest activity in the past few years in this valley has been along the lower river, although much work is still being done along the upper river. The largest projects now under way lie along Little River in southeastern Missouri, the St. Francis River in northeastern Arkansas, the Yazoo River in Mississippi, and on the so-called "floating prairies" in Louisiana near the mouth of the Mississippi, but extending up as far as New Orleans.

In Missouri and Arkansas this work is being done under general drainage district laws, which provide for raising funds for construction by the sale of bonds which are a lien on the land benefited. In Mississippi the work has been done by districts created by special acts, but this practice has been declared unconstitutional by the courts, and it is expected that a general law providing for the action and operation of such districts will be enacted. In Louisiana the work is being done by development companies, which are draining the land and usually selling it in small tracts. The work in Louisiana is different from that in the other States named, in that there is no gravity outlet for the surplus water, and consequently it must be pumped. The system used is to inclose the land to be reclaimed in dykes and run canals through this land to carry the water to the pumps, by which it is lifted over the dykes and discharged into the adjacent swamp, rather than into a stream or canal.

Drainage work on a large scale along the south Atlantic coast is of recent date. Within the last three years drainage district laws have been enacted in North Carolina, South Carolina, Georgia, and Virginia, and in all these States large areas are being reclaimed under these laws. These district laws, like others, provide for the sale of bonds, which are a lien on the land benefited, and for the collection of principal and interest as well as the cost of operation and maintenance by taxation.

A part of the famous Dismal Swamp in Virginia has been formed into a district, and plans are being made to reclaim another section of this swamp in North Carolina. Another large

project in North Carolina provides for the drainage of Lake Mattameskeet. In South Carolina large areas of swamp land in the vicinity of Charleston have been drained, greatly improving sanitary conditions as well as agricultural conditions.

The Everglades of Florida form the largest single swamp area in the United States. The land within the Everglades belonged to the State, under the swamp land grants, and the State has undertaken its partial reclamation by providing main canals to carry off the surplus water and lower the level of Lake Okechobee during dry seasons, making it available for storage during wet seasons. The State is excavating these canals and has sold much of the land to development companies which are selling it in small tracts to non-residents on partial payments.

So much interest in drainage has been aroused that there was formed at Chicago, December 8, 1911, the National Drainage Association for the purpose of obtaining federal aid for drainage. It is contended that since many of the streams along which lie the lands to be reclaimed are interstate streams, and since these streams must be treated as units to be controlled to the best advantage, it is necessary for the federal government to take control of this work, instead of leaving it to local districts created under the laws of the several States. It is urged also that the federal government should advance funds for the work of drainage, the whole work of the federal government being based on its power to control navigation.

Along with this activity in public drainage there has been a rapid extension of farm drainage, principally by the use of tiles. The most rapid extension of tile drainage has been in the upper Mississippi valley and Indiana and Ohio, several million acres having been provided with tile drains in this section within the last few years.

The swamp lands of the United States, generally, are near to markets, and are of great natural fertility, and they can be reclaimed well within the cost of improved lands in the same general localities. It may be expected, therefore, that the reclamation of swamp lands will make rapid progress so long as the present high prices of farming lands prevail.

DRAINAGE ASSOCIATION, NATIONAL.
See DRAINAGE.

DRAMA. After two seasons, during which the fate of New York's New Theatre hung in the balance, the establishment was closed in the spring of 1911, and before the end of the year finally abandoned. Thus ended the most ambitious and costly attempt yet made in this country to found a theatre which should set the standard for dramatic art in the United States, as the Comédie Française of Paris does for France and the Burg Theater of Vienna does for Austria. A fairly full account of the inception of this enterprise, and its too brief history, may be found in the *YEAR BOOKS* for 1909 and 1910.

Many reasons have been given for the failure of the New Theatre. The score of rich men who founded it were prepared to lose some money and to carry the establishment along for a term of years at a loss. It is well known that the best theatres of Europe have to be helped with a subsidy from the state. It was expected that the house might need help for several years, and when it opened in 1909 it was said by some of

the founders that a deficit of \$100,000 a season would not cause dismay. But the loss proved to be more than double that sum. Half a million dollars is said to have been spent in the experiment. Probably the chief blame for the failure should be placed upon the building itself, which, while beautiful and luxurious, proved unsuitable to its purposes. It was too large for all but spectacular productions. Dramas and comedies failed of their intended effect because actors could not be properly heard or seen. Naturally, there has been much criticism as to the artistic conduct of the enterprise. Not all the new plays produced were worthy of the honor, and not all the old ones revived were well given. It was realized too late that with a smaller and less pretentious house the experiment would almost certainly have proved a success. Audiences large enough to fill a smaller house were lost in the New Theatre, to the discouragement of the players and consequent injury to the performance. This was felt so strongly that when the New Theatre building was finally abandoned the founders voted to build another house half the size and continue the enterprise. Ground was bought for the purpose and the project may some day be carried out, although for the present it is in abeyance.

The artistic results achieved by the New Theatre during its two years' existence cannot be ignored. The enterprise failed, but the company, which comprised such excellent people as Edith Wynne Matthison, Rose Coghlan, Jessie Busby, Mrs. Sol Smith, Mrs. Harriet Otis Dellenbaugh, Messrs. A. E. Anson, Louis Calvert, Robert Bruning, Ferdinand Gottschalk, E. M. Holland, and Frank Gillmore, was concerned in a number of productions that will be remembered with pleasure. Such spectacular pieces as Maeterlinck's *Blue Bird*, the sumptuous revival of *The Winter's Tale*, comedies such as *Don*, by Besier, and Pinero's *Thunderbolt* may be cited. While the productions at the New Theatre often lacked brilliancy, there was a dignity and an artistic conscience evident that had its effect. Enough was accomplished to make it reasonably certain that another attempt will be made in the near future to establish a representative American theatre.

Looking over the record of new plays produced in the United States in 1911, it may be said that the year will be remembered for many productions of a serious or semi-serious type. There were no dramas of such popular appeal as *Alias Jimmy Valentine* and no comedies superior to *The Concert*, both of which plays were fixtures in New York during 1910. On the other hand, there were several plays that showed more plainly than ever the independence of the American stage. A generation ago this stage was almost wholly occupied with the work of Englishmen or with adaptations from the French or German. Since then the tide has turned. The most successful serious play of the year was probably Augustus Thomas' *As a Man Thinks*, which placed the author at the head of American playwrights. *The Witching Hour* of Mr. Thomas was one of the strong plays of the last few years, but *As a Man Thinks* has a literary quality as well as a dramatic force far beyond that fantastic achievement. It sketches admirably the manner in which a man of power and heart may help his fellow men. Mr. Thomas makes his protagonist a Jew, but he might just as well have taken a Gentile. Vedah, the daughter of a Jewish doc-



Courtesy of the *Review of Reviews*
LADY GREGORY



AUGUSTUS THOMAS



DAVID BELASCO



EDWARD S. SHELDON

FOUR LEADING DRAMATISTS OF 1911

tor, is engaged to marry a certain Benjamin De Lota, whose life has not been clean. She does not love him, but has given her heart to a young sculptor. De Lota's misdeeds involve the wife of a Gentle, whose husband, upon discovering his wrongs, vows to bring two homes to dishonor. The situation is saved by the wisdom of Dr. Seelig, who argues for sanity and moral cleanliness in a way that carries conviction. In his long career Mr. John Mason has done nothing better than in his portrayal of Seelig. The poison of race hatred, the saving grace of kindness, are brought into contrast with exquisite effect by an actor whose rôle of mentor might easily tend to preaching of the tedious character if less skillfully handled. Mason had splendid assistance from Miss Chrystal Herne, as the erring wife, and from Miss Charlotte Ives as the young Jewish girl. Messrs. John Flood, Walter Hale, and Vincent Serrano were also conspicuous in this strong play.

Another American playwright, William C. De Mille, deserves credit for one of the noted plays of the year, *The Woman*, in which he had the valuable assistance of David Belasco, a past-master in stagecraft who can make vivid and interesting incidents that, less skillfully treated, might dwindle to theatrical clap-trap. In order to smirch the reputation of a political leader a certain woman's name is needed. The pulse of the drama is felt when a telephone girl's blunder may lead to the vital discovery. Mr. John Cope, who in 1910 played a minor part in *The Concert* with notable skill, was the endangered politician, acting with admirable force; while Miss Mary Nash, who will be remembered by playgoers as one of the best figures in the late Clyde Fitch's *The City*, did exceptionally good work as the telephone girl. Mr. Belasco's stage management was equally conspicuous in a play of his own, *The Return of Peter Grimm*, with David Warfield as the chief figure. Here again was a play which might easily have degenerated to melodrama but for exquisite handling upon the part of the star and his stage manager. Peter Grimm is a worthy old fellow who, dying, leaves his beloved ones exposed to rascality of which he did not dream. He returns to put matters right, standing behind the actors in the little drama and suggesting to them his wishes. Mr. Belasco takes the stand that a man's active power for good does not cease when death comes and that his spirit is still to be reckoned with. People who reject the supernatural altogether may find *The Return of Peter Grimm* a preposterous affair, but no one will deny its ingenuity, nor the rare art which Mr. Warfield brings to it. He has contributed to the stage nothing more exquisite than his first-act picture, in which the old gardener, Peter, in his quaint home tries to make sure that after he goes those dependent upon him will be happy. Every part in the drama is well done. Next to Mr. Warfield himself, the chief honors fell to a remarkable boy, Percy Helton, who, as the sensitive medium through whom Peter Grimm's wishes are transmitted to the living characters, proves that all children are not nuisances upon the stage. Both these plays held the New York stage for many months.

The Havoc, by E. S. Sheldon, had but a short life in New York, but was remarkable for some fine acting by Henry Miller. Only four persons are involved. Henry Craig, finding that his wife

and a certain Paul Hessert have fallen in love, offers to give way to the latter or shoot him. Hessert takes the husband's place and Craig boards with the couple. It is the old story of *Divorçons* seriously treated. The lover becomes jealous of the husband, who remedies the havoc made by two frivolous persons. Of more popular appeal was George Broadhurst's *The Price*, in which Miss Helen Ware proved her right to a conspicuous place upon the local stage. It was a good example of the emotional drama. A young girl becomes the secretary and finally, under temptation of loneliness and poverty, the mistress of an artist whose wife is the typical household drudge, faithful but uninteresting. The girl falls in love with a certain doctor and after the artist's death is married to him. The doctor needs a housekeeper and, of course, it is no other than the widow of the artist who obtains the place, and proceeds to wreck the household. The husband learns of his wife's misstep, and the price she pays is his lurking suspicion that having gone wrong once she may do so again. The solution is left to time. The chief figures are capably drawn, while the main theme, which suggests Emerson's theory of compensation, the ultimate reward or punishment in ratio to the initial good or evil, is adequately handled. The two women concerned did excellent work. Miss Ware sounded the emotional note with a sure touch and made the woman appealingly human, with just enough of the alloy of weakness necessary for the conditions essential to the tragedy involved. Harrison Hunter gave a good portrayal of the doctor.

The Piper, a play in verse by Josephine Preston Peabody (Mrs. Lionel S. Marks), to which was awarded the Stratford (England) prize of \$1500, in 1910, was produced in the New Theatre and greatly praised as a piece of literature. Its dramatic value was less evident. Mrs. Marks takes Browning's "Pied Piper" as a foundation, adding to it a love story and making the Piper the mouthpiece for much philosophy concerning the wrongs of blighted childhood, the formalism of churches, and man's inhumanity to man. The title rôle fell to Miss Matthison, who did all that a woman could with a part essentially masculine. Her embodiment of the Piper was rich in intellectual and artistic suggestion, alert, buoyant, by turns pathetic and humorous. But its limitations were sharply marked. The New Theatre production was in good taste and gave a fitting setting to Mrs. Marks' poetic variant of a mediæval legend. Mrs. Marks' *Piper* was not the only ambitious play by an American woman produced in this country during the year, for Miss Margaret Anglin brought out in Boston a three-act tragedy by the late Julia Ward Howe, entitled *Hippolytus*. Miss Anglin acted Phædra with fine zeal. While Mrs. Howe's drama, which was given but once and more as a curiosity than anything else, makes no appeal to the playgoers of to-day, its production is worthy of record.

Here may also be mentioned the American production of Rostand's *Chanticleer*, which comedy was the European sensation of the previous season. As in the case of *The Piper*, *Chanticleer* suffered by the miscasting of the chief part, which, even more than in the case of Mrs. Marks' play, required a man. Miss Maude Adams, excellent actress though she is, attempted the impossible when she appeared as Chanticleer, a part played to perfection in the Paris

production by Guitry, one of the most virile of actors. Everyone knows that Rostand intended it for Coquelin, an actor gifted with a wonderful voice and rare elocutionary powers. To intrust such a part to a player whose acting powers lie within a narrow gauge and whose physical resources are hopelessly inadequate to the demands made upon them, was to invite disaster, notwithstanding which the public flocked to the performance, thanks partly to Miss Adams' personal popularity and the beauty and novelty of the stage trappings. Mr. Louis N. Parker furnished a satisfactory English version. *The Garden of Allah*, a dramatization of Robert Hichens's romance of the same name prepared by the author assisted by Mrs. de Navarro (Mary Anderson), proved to be a gorgeous spectacle if not much else. Much was made out of the scenes in the desert, dressed out with a wealth of Oriental detail in the way of real Arabs, camels, etc. Mr. Lewis Waller, an English actor of note, made much of the part of Boris. Also Oriental in its appeal was *Kismet*, a romance of the Arabian Nights by Edward Knoblauch, in which Mr. Otis Skinner, an actor of much resource, appeared to advantage. To the same playwright is to be credited *The Faun*, in which William Faversham showed the sort of havoc that a truth-telling person may create in polite society, an old theme treated with no little skill and from new points of observation. Mr. Faversham again showed intelligence and artistic conscience. Another play involving an Oriental setting was Edgar Selwyn's *The Arab*, which had a brief career.

In the way of serious comedy, one of the notable plays of the year, an English importation, was A. E. W. Mason's *Witness for the Defense*. As the young woman charged with murder, Miss Ethel Barrymore did the best work of her career, playing with unexpected subtlety and strength. She had admirable support from A. E. Anson, whose poise and virile power helped to make the performance one of the most successful of the season. A more serious comedy, in fact rather depressing, was Ibsen's *Lady from the Sea*, first given in Chicago by the Drama Players, a local organization, and later repeated in New York. Although familiar to the German stage, it has been seen in this country but a few times and can hardly be said to have made a deep impression. The part of the lady whose life is haunted by dread of a terrible person who threatens to drag her back to the sea, was played with skill and sympathy by Miss Hedwig Reicher, a recruit from the German stage. The same company gave a pleasant performance of Prof. Curtis Hidden Page's translation of Molière's *Femmes Savantes* under the title of *The Learned Ladies*.

Of small artistic value, calling for nothing beyond record, were C. M. S. McLellan's *Judith Zaraine*, in which Miss Lena Ashwell appeared; *Thais*, a drama founded upon Anatole France's novel, in which Miss Constance Collier disported herself; *The Confession*, by James Reid, a play dealing with the inviolability of confessions made to a priest; *Everywoman*, a fantastic allegory in the style of *Everyman*, by Walter Browne; and Louis N. Parker's *Lady Godiva*, a version of the Coventry legend, with Miss Viola Allen as the Lady. Of slight interest was J. M. Patterson's *The Rebellion*, a divorce study illustrated by Miss Gertrude Elliott. Holbrook Blinn, an actor of some power, made a

popular success with *The Boss*, a drama of politics and business by Edward S. Sheldon; and Miss Margaret Illington harrowed up the feelings of her audience with a realistic sketch of a weak, miserable, poverty-stricken woman in *Kindling*, by Charles Kenyon. Among foreign adaptations of serious plays may be noted a version of Pierre Wolff's *Marionettes* with Madame Nazimova in the chief part, and *The Great Name*, from the German of Victor Leon and Leo Feld, in which Henry Koelker was a musical genius. *The Deep Purple*, a melodramatic picture of criminal life, by Messrs. Armstrong and Mizner, thrilled the public which likes to be thrilled by such plays. *Bought and Paid For*, by George Broadhurst, will be remembered for the good comedy work of Frank Craven and an unpleasant drunken scene which went far to neutralize this good work.

In the field of light comedy, one of the final productions at the New Theatre, Miss Symond's *Nobody's Daughter*, an English importation, was interesting and beautifully played by Miss Pamela Gaythorne, A. E. Anson, E. M. Holland, Frank Gillmore, and others. The story of a delightful waif, who, after sundry tribulations, attains happiness, was pleasantly told. *Passers-By*, a success of the season of 1910-11 in London, showed once more Haddon Chambers' dainty touch and quiet humor. As a story it lacked probability, but in its sketches of various London types it ranked with the best minor plays of the year. Miss Anglin appeared in an amusing comedy by A. E. W. Mason entitled *Green Stockings*, a titled derived from the old Irish custom which prescribes green stockings for the unmarried elder sister at the younger sister's wedding. The efforts of a young woman to get rid of the green stockings make up a clever little play. Of more importance was Mr. Parker's *Disraeli*, which afforded George Arliss opportunity for a remarkable sketch of the English statesman. There is not much of a play, but Mr. Arliss, in a wonderful counterfeit of "Dizzy" as known by countless pictures and caricatures, was an effective figure in the various incidents strung together by the author. John Drew's annual contribution to the gaiety of the stage was made with Hubert Henry Davies' *A Single Man*, not so clever a play as the author's *Molluso*, but offering the sort of part that suits Mr. Drew, who plays the amiable middle-aged bachelor who ought to be married and is married before the curtain falls. *The Runaway* provided Miss Billie Burke with a chance to exert her coquetry and also show a touch of pathos. It was adapted from the French. Mrs. Minnie Maddern Fiske found in a farce comedy, Mrs. Bumpstead-Leigh, by Harry James Smith, material that served her well. Mrs. Fiske reveled in the part of a woman with a past that must be hidden at all costs, but constantly threatens to ruin her social ambitions. An adaptation of Henri Lavedan's *Sire*, in which a half-demented lady, a royalist fanatic, is deceived into believing that a masquerading mountebank is the lost Dauphin of France, was seen with Mr. Otis Skinner in the part of the imposter. *The Old New Yorker*, by Harrison Rhodes and Thomas A. Wise, with the latter as star; *The Senator Keeps House*, by Martha Morton, with William H. Crane as the chief figure; and *The Cave Man*, in which Gellert Burgess plays upon the foibles of polite society, with Robert Edeson as the coal heaver,



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MME. SIMONE



ALLA NAZIMOVA
 Sarony, N. Y.



MAUDE ADAMS

FOUR LEADING PLAYERS IN 1911

who becomes a drawing-room idol, were some of the comedies worthy of note. A one-act sketch by J. M. Barrie, *The Twelve-Pound Look*, a lesson to husbands who forget that wives need more than food, silk, and diamonds, was presented by Miss Barrymore. A version of *Vanity Fair* by Robert Hichens was brought forward by Miss Marie Tempest, who played Becky Sharp. The New Theatre company helped the English star in a creditable performance.

Of the farces of the year perhaps none had more success than *Excuse Me*, by Rupert Hughes, depicting what might happen on sleeping cars on a cross-continent trip. There were also Charles Klein's *Maggie Pepper*, vitalized by Miss Rose Stahl of *Chorus Lady* fame; and *The Never Homes*, in which George W. Monroe acted. The farce crop was large but not notable for quality.

An interesting event of the year was the appearance in America of a company of Irish players who presented in an unpretentious but competent fashion some of the plays of the late J. M. Synge, one of which, *The Playboy of the Western World*, aroused here, as it had previously done in Ireland, much opposition from Irishmen who denounced it as a libel upon the national character. That a man who is supposed to have killed his father could fail to be held in universal execration by the Irish peasantry was held to be a false note that called for rotten eggs by way of criticism. The literary and dramatic value of Synge's work was made known here for the first time, and the company presented several plays of interest by Yeats, Lady Gregory, and Bernard Shaw, whose *Unmasking of Blanco Posnet* was a curious mixture of good and bad. A Scotch company came to this country to give *Bunt Pulls the Strings*, a delightful little comedy of Scotch life, by Graham Moffat, played to perfection. Madame Simone, the French actress of emotional drama, appeared in English in Bernstein's plays, *The Thief* and *The Whirlwind*. Perhaps the handicap of a foreign language caused her to be less successful than her high reputation in Paris warranted her friends in expecting.

ENGLAND. Rudolf Besier's *Lady Patricia* was perhaps the success of the year on the London stage. Local report characterizes it as a caricature upon the mannerisms of Mrs. Patrick Campbell, who acted the part of a middle-aged woman who finds out in time that romantic philandering with younger men is not wise. The London critics exhausted their complimentary adjectives in praise of the humor of the comedy and the capital acting of Mrs. Campbell, who of late years has not been fortunate in her theatrical experiments. The prolific Somerset Maugham brought out *The Loaves and Fishes*, a comedy in the style of Bernard Shaw, with some clever dialogue devoted to satirizing English society. Also well received were Jerome's *The Master of Mrs. Childers*, revolving around an election in which the wife beats the husband, and Pinero's annual contribution, *Preserving Mr. Panmure*, an amusing study of an arch-hypocrite who frowns upon cards, wine, and frivolity, only to be caught playing Romeo under disgraceful conditions. Far less exhilarating was a one-act sketch by Henry James, *The Saloon*, in which he proves once more his literary grace. The critics called it dreary. A rollicking little comedy by Henry Arthur Jones was *The Ogre*, a pater familias who teaches his

frivolous family that life is not all beer and skittles. Mr. Alexander played the title rôle. *One of Dukes*, by George Pleydell, offered Mr. Cyril Mauda opportunity to play the silly ass he does so well. Mr. Bouchier produced a serious drama in blank verse by Israel Zangwill, entitled *The War God*, a species of allegory in which Bismarck, Tolstoi, and other great men figure. There was also in London an elaborate revival of *A Midsummer Night's Dream* by Sir Herbert Tree, and a dramatization of Hichens' *Bella Donna*, in which Mrs. Patrick Campbell appeared.

FRANCE. Bernstein's *Après Moi*, a three-act drama produced at the Théâtre Français, was the cause of a riot in Paris owing to anti-Semitic cabals against the author and had to be withdrawn. Its subject is Bernstein's usual triangle of marital infidelity, blended with agony for all concerned. As drama it was not considered by French critics the equal of the author's best plays. Paul Bourget had a new drama entitled *The Tribune*, which owed most of its success to the acting of Guitry. Neither Porto-Riche's *Le Vieil Homme*, nor Trairieux's *La Brébis Perdue*, a dramatization of Balzac's "Curé de Village," produced at the Français, achieved popularity. Bataille's *L'Enfant d'Amour*, with Madame Réjane in the chief part, proved to be a powerful but depressing drama in which a son sacrifices all for his mother. Other domestic dramas that caused some talk were *La Flambee*, by Henry Kistemaekers, and *L'Inquiété* in which is sketched the disillusionment of a woman who falls in love with a failure. The successful farce of the year in Paris was *La Petit Café*, by Tristan Bernard, whose hero, a waiter with a soul above his position, was wonderfully played by Le Gallo. *Papa*, by MM. De Flers and Caillavet, turns upon the self-effacement of a young man whose sweetheart is appropriated by his father.

Hauptmann's *The Rats*, produced in Berlin, was a harrowing tale of poverty, crime, and suicide. The dramatic sensation of the year in Berlin was Max Reinhardt's revival of the second part of *Faust* upon a colossal scale, requiring six hours for its performance, forty-seven scenes, and between four hundred and five hundred players in the mob scene. In St. Petersburg, Maxime Gorky's new play *Queer People*, based upon the "affinity" problem, failed to interest the public.

The world was made poorer by the death in May of Sir William S. Gilbert (q. v.), whose admirable comedies are now classics. Kyrle Bellew, an English actor well known in the United States, died in November.

DRAMA, FRENCH. See FRENCH LITERATURE.

DRAMA, GERMAN. See GERMAN LITERATURE.

DRAWBAUGH, DANIEL D. An American inventor, died November 3, 1911. He was born in 1827 and received his education in the public schools. At sixteen years of age he was obliged to leave school and began the work of repairing clocks, guns, and machinery, in which he displayed remarkable skill. In 1860 he began to experiment with the electrical transmission of speech and in 1869 invented an instrument which suited his ideas. He improved the receiver in 1871. After 1873 he was constantly engaged in inventing and perfecting new machines. He always maintained that he, and not Professor Alexander Graham Bell, should be honored as the inventor of the telephone. In 1881 he laid claim to the invention, merging his interests with the People's Telephone Com-

pany, an independent concern. The suit, however, was decided against him. Among his many inventions may be mentioned the collapsible lunch box, a nail-making machine, electrical grain-weighing devices, an interchangeable telephone and telegraph apparatus, pneumatic tools, telegraph senders, and many other devices.

DREADNOUGHTS. See **BATTLESHIPS**.

DREDGING. A powerful dredger, the *Coro-zal*, was built in 1911 on the Clyde at Renfrew, Scotland, and was launched in September. This vessel was built for the United States government for use in the construction of the Panama Canal, and the placing of the order with a foreign firm occasioned considerable controversy in the United States. The bid of the Scotch ship builders (\$399,340) was so greatly below the lowest tender of an American yard (\$874,146) that the government decided to award the contract to British builders. This powerful dredger has a capacity of 12,000 tons of material, and the bucket ladder can work to a depth of 50 feet. The vessel is propelled at a speed of ten knots an hour by two systems of tripple-expansion engines. Either of the main controlling engines can drive the dredging gear, and three sets of buckets have been arranged to suit various kinds of material. These buckets are of 54 cubic feet capacity for use in dredging soft material, and of 35 cubic feet for dredging stiff clay.

During the year there was under construction at the yards of the Fore River Shipbuilding Company a new suction dredge for the United States government. This new vessel, the *New Orleans*, is for service at the Southwest Pass of the mouth of the Mississippi River, and is 315 feet long, 50 feet beam, and 26 feet depth of hold, with hoppers of a capacity of 3000 cubic yards, and her coal bunkers having a capacity of 300 tons. The suction pipe, which is hinged near the stern of the ship by hollow trunnions, is 20 inches in diameter, and is lowered through a well in the centre of the stern, so that the suction head, resembling a huge rake, with sharp cutting teeth, operates like a scraper bucket as the ship moves forward. See also **DOCKS AND HARBORS**.

DRESSER, SOLOMON ROBERT. An American public official and inventor, died January 20, 1911. He was born in Litchfield, Mich., in 1842, and was educated in the common schools. He engaged in manufacturing, and in 1880 took out his first patent. Among his inventions are a packer for natural gas and oil wells, a rubber coupling to make a tight joint in natural gas pipes, and an insulating coupling to prevent the leakage of electricity from conduits. He was elected to the Fifty-eighth and Fifty-ninth congresses in 1903 and 1907 as a Republican from the twenty-first Pennsylvania district.

DRUGS. See **FOOD AND NUTRITION**.

DRYDEN, JOHN FAIRFIELD. An American insurance official, former United States senator from New Jersey, died November 24, 1911. He was born near Farmington, Me., in 1839. He entered Yale College in 1861, but left before graduation on account of illness. He became a life insurance agent and made a careful study of its underlying principles. He conceived the plan of establishing industrially insurance in the United States as practiced in England. After several years spent in mastering the theory and practice of the subject, he founded in 1873 at Newark, N. J., the Widows'

and Orphans' Friendly Society. In 1875 this became the Prudential Life Insurance Company. The company from the first met with great success and is now one of the leading life insurance companies of the United States. In 1896 and in 1900 Mr. Dryden was a presidential elector from New Jersey. In 1902 he was elected United States senator for five years to fill the unexpired term of William J. Sewell, deceased. In 1907 he was a candidate for reelection, but the opposition was so great that he withdrew his candidacy in favor of John Kean. Mr. Dryden was one of the organizers of the Public Service Corporation of New Jersey and was largely interested in other industrial and financial companies. He was interested in forestry and the conservation of other natural reserves, and shortly before his death had arranged to devote a large section of land owned by him to reforestation processes. He was one of the wealthiest financiers of New Jersey.

DEY DOCKS. See **DOCKS AND HARBORS**.

DRY FARMING CONGRESS, INTERNATIONAL. See **AGRICULTURE**.

DUDLEY, EDGAR SWARTWOUT. An American army officer and educator, died January 9, 1911. He was born at Oppenheim, N. Y., in 1845, and graduated from the United States Military Academy in 1870. He was made first-lieutenant in 1875, captain and assistant quartermaster in 1892, major and judge advocate in 1901, and colonel and judge advocate in 1903. He was promoted to be brigadier-general, and retired at the age limit in 1909. From 1876 to 1879 he was professor of military science and tactics at the University of Nebraska and also from 1884 to 1888. He was lieutenant-colonel of United States volunteers and judge advocate for the Division of Cuba from December, 1898, to May, 1901. At the same time he acted as legal adviser in the civil and military affairs to the military governors of Cuba. From 1901 to the time of his retirement he was professor of law in the United States Military Academy. He was the author of *Military Law* and *The Procedure of Courts-Martial* (1907).

DUDLEY, IRVING BEDELL. An American diplomat, ambassador to Brazil, died November 27, 1911. He was born at Jefferson, Ohio, in 1861, and graduated from Kenyon College in 1882. After studying law at Columbian (now George Washington) University, he was admitted to the bar in 1885. He practiced in San Diego, Cal., and from 1891 to 1895 was judge of the city court of that city. In 1896 he was a member of the Republican State executive committee of California. He was appointed minister to Peru in 1897, serving until 1906. In that year he was transferred to Brazil with the rank of ambassador.

DUDLEY, WILLIAM RUSSELL. An American botanist, died June, 1911. He was born in Guilford, Conn., in 1849, and graduated at Cornell University in 1874, and from the Medical School in 1876. He studied natural history in the Agassiz School, Penikese Island, Mass., in 1874. He was instructor in botany at Cornell University from 1873 to 1876 and assistant professor from 1876 to 1893. In 1887-8 he studied at the universities of Strassburg and Berlin. In 1883 he was appointed assistant professor in charge of cryptogamic botany at Cornell University, holding this position until 1892. In the latter year he became professor

of botany at Leland Stanford Junior University. He was the author of *The Cayuga Flora* (1886), *Lackawanna and Wyoming Flora* (1887) and *Manual of Histology* (with Professor M. B. Thomas, 1894).

DURHAM, MILTON JAMISON. An American lawyer and public official, died February 12, 1911. He was born in Mercer, Ky., in 1824, and graduated from Asbury (now De Pauw) University in 1844. He studied law at the Louisville Law School and was admitted to the bar in 1850. In 1861-2 he was judge of the circuit court. He was elected to Congress in 1873 and served in the Forty-third, Forty-fourth and Forty-fifth congresses. In 1885 he was appointed Comptroller of the Treasury by President Cleveland.

DUST FEVER. See **MALTA FEVER.**

DUTCH EAST INDIES. Colonial possessions of the Netherlands lying between Australia and the continent of Asia.

AREA, POPULATION, ETC. Area and population (necessarily approximate only) follow:

	Sq.kil.	Pop. end of 1905
Java and Madura.....	131,508	30,098,008
Island of Sumatra:		
Sumatra, West Coast....	82,332	1,308,471
Sumatra, East Coast....	91,894	568,417
Benkulen	40,291	413,301
Tapanoli	42,091	204,269
Lampongs	29,366	156,518
Palembang	139,128	796,354
Atjeh (Achin)	63,222	582,175
Riau-Lingga Archipelago ..	42,420	112,216
Banca	11,587	115,189
Billiton	4,842	36,858
Borneo, West Coast.....	145,195	450,929
Borneo, So. & East Dists..	408,145	782,726
Island of Celebes:		
Celebes	128,478	415,499
Menado	57,436	436,406
Molucca Islands	114,057	407,906
Timor Archipelago	46,056	308,600
Ball and Lombok.....	10,522	523,535
New Guinea to 141° E. long	394,789	240,000
Total 1905	1,915,417*	37,957,400

* 759,543 sq. miles.

Principal towns of Java: Batavia (the capital), with 138,551 inhabitants; Surabaya, 150,198; Samarang, 96,600. Of Sumatra, Palembang, 60,985; of Borneo, Banjarmasin, 16,708; of Celebes, Macassar, 26,145. Primary schools (1908) for Europeans, 230, with 26,790 pupils; for natives, 981 in Java and Madura, with 145,844 (1908 figures for other possessions not available; in 1907, 1530 schools with 132,385 pupils). Secondary European schools (1908), 9, with 2160 students; normal, 2, with 65. Normal native, 5, with 454 students. Schools for sons of native chiefs, 4, with 434 pupils.

PRODUCTION. Total area under cultivation by natives in Java and Madura in 1908, 4,449,694 backus (1 backu=1½ acres); 1907, 4,288,031; 1906, 4,213,460. Cattle in Java and Madura in 1900, 5,509,240; in all the possessions (1905), 6,219,881. Agricultural and mineral productions for three successive years are given as follows:

Products	1906	1907	1908
Sugar (Java)*	16,041,197	17,854,957	18,718,325
Coffee*	523,000	271,000	327,170
Cinchona†	5,972,550	9,008,730	8,030,171
Tobacco†	52,180,933	60,183,212	53,856,320
Tea (Java)†	11,961,710	11,494,665	15,196,894

Products (cont.)	1906	1907	1908
Indigo (Java)†.....	289,527	.....	.....
Nutmegs* .....	.....	57,746	44,270
Mace* .....	.....	10,968	8,302
Cacao (Java)†	1,437,833	1,382,149	2,086,611
Tin (gov'm't)* .....	.....	190,081	191,930
Tin (private)* .....	.....	68,609	72,932
Coal†	371,976	401,364	427,752
Crude oil†	1,029,533	1,316,959	1,209,114
Gold†	2,586	3,206	4,076
Silver†	8,422	11,152	16,270
Diamonds			
(Borneo)§	3,800	4,100	3,200
Copper, etc†	3,600	28,700	45,892
Manganese†	1,500	4,500	1,200

* In piculs. † Kilograms. ‡ Tons. †† Thousands of liters. § Carats.

The government tin mines (at Banca) employed, in 1909, 19,134 operatives and produced 204,191 piculs; private tin mines, 12,777 operatives, 73,557 piculs.

COMMERCE AND COMMUNICATIONS. Imports and exports were valued in 1909 at 281,637,000 and 455,094,000 guilders respectively (1 guilder = 40.2 cents), against 280,562,000 and 470,714,000 in 1908. Vessels entered (1909) 7898, of 10,696,000 cubic meters capacity. Railways in operation (1908), 3198 miles (2623 in Java, 575 in Sumatra); of telegraph, 8800. Telegraph offices, 569; post offices, 1682.

FINANCE AND GOVERNMENT. Revenue and expenditure for two years and the budget for 1911 are given as follows in thousands of guilders:

	1908	1909	1911
Revenue	189,511	181,540	214,610
Expenditure	191,083	193,939	239,017

Colonial army (January 1, 1909), 35,208 officers and men; effective navy, 17 vessels, aggregating 23,159 tons. Governor-general (1911), A. W. F. Idenburg.

DUTCH GUIANA, or SURINAM. A Netherlands colony on the northern coast of South America. Area, between 46,000 and 49,000 sq. miles. Population (exclusive of negroes in the forest tracts) in 1909, 82,739. Capital, Paramaribo, with 34,795 inhabitants. Schools (1908), 63, with 8464 pupils. Production of sugar (1908), 11,999,241 kilograms; cacao, 1,409,761; coffee, 502,900; rice, 1,686,670; corn, 812,059; bananas, 447,585 bunches; rum, 936,769 liters; molasses, 145,954 liters. Imports (1908), 7,036,847 guilders (1 guilder=40.2 cents); exports, 6,033,369; (gold, 1,674,021). Vessels entered, 234, of 202,214 tons; cleared, 235, of 201,757. Local revenue (1910), 5,815,588 guilders; expenditure, 6,738,174; subvention, 922,586. Governor (1911), R. D. Fock.

DUTCH GUIANA, EXPLORATIONS IN. See **EXPLORATION.**

DUTCH NEW GUINEA, EXPLORATIONS IN. See **EXPLORATION, Asia.**

DUTCH WEST INDIES. See **CURAÇAO** and **DUTCH GUIANA.**

DWIGHT, THOMAS. An American anatomist and educator, died September 8, 1911. He was born in Boston in 1843, and graduated from Harvard College in 1866. He studied medicine at the Harvard Medical School, graduating in 1867. After studying for two years abroad he became instructor in comparative anatomy at Harvard, remaining there for one year, when he became lecturer and professor of anatomy at Bowdoin College. He was later in succession

instructor in histology, topographical anatomy, and Parkman professor of anatomy at Harvard. In the latter position he succeeded Dr. Oliver Wendell Holmes in 1883. From 1873 to 1878 he was editor of the *Boston Medical Journal*. In 1884 he delivered a course of lectures in the Lowell Institute of Boston on *Mechanism of the Bone and Muscle*. He was a prolific writer, especially for the medical press. His principal works are *Anatomy of the Head* (1876), *Frozen Sections of a Child* (1881), and *Variations of the Bones of the Hand and Foot* (1907). He contributed to Piersol's *Human Anatomy* (1907), and wrote various papers on human and vertebrate anatomy. Dr. Dwight was one of the leading Catholic laymen of Boston and he was chosen president of the Association of Catholic Physicians and Surgeons, formed in 1910 under the title "The Guild of St. Luke."

DYNAMICAL GEOLOGY. See GEOLOGY.

DYNAMO-ELECTRIC MACHINERY. The developments in electrical machinery during 1911 followed closely the precedents set during 1909 and 1910. The development of the turbo-generator has continued to be the most notable feature. It is estimated that the units of this type now in service exceed an aggregate capacity of 15,000,000 horsepower. The recent types have been designed for very much higher speeds than were previously employed with distinct gains in efficiency and reductions in first cost. Units up to 4000 kw. are now built to run at 3600 revolutions per minute, and larger sizes up to 10,000 kw. at 1500 and 1800 revolutions per minute. The 20,000 kw. machines installed during the year have shown an excellent performance. Earlier units were wound for direct connection to the bus-bars at voltages from 6600 to 13,200, but the present practice is to wind the machines for half the bus-bar potential and make the connection through a step-up compensator of special design. This arrangement gives the new units a greatly increased choking effect on the enormous currents which tend to develop at a short circuit and makes the control of the unit by an oil circuit breaker entirely reliable, as was demonstrated by an exceptionally severe series of tests conducted on a 12,000 kw. machine. These tests also pointed the way to improvements in the internal arrangement of oil circuit breakers which added much to their effectiveness.

Advances of note have been made in the construction of rotary converters. The use of commutating poles raised the safe limit of voltage per commutator segment and led to the development of successful machines for 1500 volts on the direct current side. A new record of capacity was reached in a 6-phase, 600-volt unit of 300 kilowatts. The development of a satisfactory type of single phase converter met a long-felt want. A new type of direct current generator has been designed on the split-pole principle, an auxiliary brush being used to fix the neutral point for three-wire service. This type of machine also serves effectively as a voltage balancer or as a voltage converter.

Several types of small single-phase motors for constant and adjustable speed service were placed on the market and were well received. In general these have a rotor of double winding, the greater portion of the power being developed in a squirrel-cage winding acting as an induction motor. With this is associated a commutator winding with auxiliary brushes and

connections to control the speed and correct the power factor to a leading value. Commercial forms of variable speed 3-phase induction motor were developed. These are generally provided with distributed stator windings whose connections can be altered to give different numbers of poles.

Transformers designed for 750,000 volts were built for experimental and testing purposes and safely developed 900,000 volts in service. The production of small motors for industrial, vehicle, and domestic service was unprecedented.

EARLE, ALICE (MORSE). An American author, died February 16, 1911. She was born at Worcester, Mass., in 1853, and was educated at the Worcester High School. In 1874 she married Henry Earle of Brooklyn, N. Y. She was the author of many volumes, among them the following: *Sabbath in Puritan New England* (1891); *China Collecting in America* (1892); *Customs and Fashions in Old New England* (1893); *Life of Margaret Winthrop* (1894); *Colonial Days in Old New York* (1897); *Curious Punishments of Bygone Days* (1897); *Home Life in Colonial Days* (1898); *Child Life in Colonial Days* (1899), and *Stage Coach and Tavern Days* (1900). She was also joint author of *Early Prose and Verse* (1893); *Historic New York* (1897); *Old Time Gardens* (1901); *Sundials and Roses of Yesterday* (1902), and *Two Centuries of Custom in America* (1903). She also contributed to various magazines and journals.

EARTH, HISTORY OF. See GEOLOGY.

EARTHQUAKES. There were few destructive earthquakes during 1911, although minor shocks were registered frequently by seismographic stations in the United States and elsewhere. For the last three years most countries have enjoyed respite from disasters of the kind that befell San Francisco, Kingston, and Messina in the period from 1906 to 1908. An exception to this general statement should be noted in respect to the cordilleran region of Mexico and Central America, where violent disturbances have lately taken place, the most notable of which have been the Costa Rican earthquake that destroyed Cartago and the one in southern Mexico on June 7, 1910.

The recent Mexican disturbance devastated a large area in the states of Jalisco, Colima, and Michoacán, and was sharply felt in the city of Mexico where it involved a property loss of \$500,000 and sixty-three fatalities. The collapse of the artillery barracks was responsible for most of the deaths in that city. Altogether 1300 people were reported to have perished, most of them were in the towns of Zapotán, Tuxpan, Colima, and Guzmán on the Pacific slope. The centre of the disturbance apparently was around the volcano Colima which coincidentally broke into eruption. The cordilleran section of Alaska was shaken on September 21 by an earthquake that displayed its greatest energy in the vicinity of Prince William Sound and caused extensive landslides and avalanches. Repeated shocks were felt in Ecuador on and about October 3. In the eastern hemisphere the most formidable disturbance of the year was reported on January 4 from the territory of Sennryetchensk, Russian Turkestan. It partly destroyed the capital city Vyerny, but the losses were not definitely stated. A fairly heavy shock on February 20 damaged Monastir, Macedonia.

Switzerland and southern Germany were visited by the severest earthquake in many years on November 16; the zone of maximum intensity was in the Central Alps, but the tremors were quite noticeable as far north as Stuttgart and Frankfurt.

SEISMOLOGY. The scientific study of earthquake phenomena has been pursued with vigor in the last few years. An indication of the wide interest it has awakened may be found in the establishment of observation stations in all parts of the world, which are now conducting an active campaign of investigation, and in the organization of societies devoted to its encouragement. An American seismological society which issues a periodical publication has recently been formed. One of the important developments that has resulted has been the perfecting of the seismograph on which our knowledge of wave motions set up by earthquakes and of their propagation is principally based. The general principles of this instrument are, of course, not new. Some form of the pendulum, either horizontal or inverted, is still generally employed to secure the necessary steady point, to which the apparatus for mechanical registration of the motion is attached. Without entering upon details it may be said that the recent improvements have been in the direction of increasing the inertia of the pendulum and further eliminating the element of responsive movement by the application of a damping device that automatically brings the pendulum to a state of rest. In this way a more faithful representation of the actual earth waves is secured. The recent types of instrument also show increased sensitiveness, a very desirable feature in the registration of distant or slight shocks. As an illustration of their delicacy Dr. Hecker of the Strassburg station has reported that he has been able to detect the existence of diurnal movements in the earth's crust that apparently correspond with the luna tides at sea.

Observations of the Messina earthquake of December 28, 1908, have been compiled by G. B. Rizzo, who obtained records from a total of 110 stations distributed over the earth as far distant as 18,000 kilometers from the source. In comparing the rate of travel of the different parts or phases of wave motion he found that up to a distance of 1500 kilometers all phases have a constant velocity. From that point the early or preliminary waves show a marked increase in velocity, which is not shared by the other phases. It would appear from this that the waves in the first part of their travels pass through the crust. The thickness of the crust is estimated from the data at forty-four kilometers.

ECCLESTON, JAMES HUSTON. An American Protestant Episcopal clergyman, died April 1, 1911. He was born in Chestertown, Md., in 1837, and graduated from Princeton College in 1856. He studied theology at the Protestant Episcopal Divinity School in West Philadelphia. He was ordained a priest in 1866, and became rector of St. Matthew's and later of the Church of the Saviour, Philadelphia. In 1875 he was elected bishop of Iowa, but the election was disputed and he declined the office. In 1877 he was elected bishop of West Virginia, but he also declined to serve in this position. He was defeated as candidate for bishop of Maryland by a small majority. Bishop Paret (q. v.)

was his successful competitor. In 1898 he was elected dean of the Theological Seminary of Virginia, but declined to accept this office. He was many times chosen as a delegate to the general convention of the church. In that body he was regarded as one of the leading authorities on canon law. His ability at drafting the final decrees of the convention was recognized and for many years he was chairman of the committee on canons of the general convention. From 1884 to the time of his death he was president of the standing committee of the diocese of Maryland and rector of Emmanuel Church, Baltimore.

ECLIPSE. See **ASTRONOMY.**

ECONOMIC ASSOCIATION, AMERICAN. A learned society, founded in 1885, for the purpose of encouraging economic studies and the publication of papers on subjects related thereto. Annual meetings are held in different cities of the United States. The meeting in 1911 was held at Baltimore, December 27-30. In conjunction with the meeting of the Economic Association, were held meetings of the American Statistical Association, the American Sociological Society, and the American Association for Labor Legislation. Joint meetings of these societies have been customary for several years. The programme of the American Economic Association included joint sessions with all of these associations. A feature of the meeting was the participation in its deliberations of a number of economists in the service of the government. Among these were E. Dana Durand, director of the census, Commissioner Neill of the bureau of labor, Chairman Emery of the tariff board, and Mr. Andrew, assistant secretary of the treasury. President Taft was the guest of honor of the association. Secretary MacVeagh presided at one of the sessions, and Secretary Fisher at another. The sessions were devoted almost entirely to economic questions of current political importance. The presidential address, delivered by Prof. Henry W. Farnam, was entitled *The Economic Utilization of History*. In this he maintained the value of experiment as a means of extending economic knowledge. The session devoted to the tariff was especially noteworthy. A paper was read by Chairman Emery of the tariff board in which he gave it as his opinion that the cost of production at home and abroad of protected commodities might be ascertained with sufficient exactness to serve as a guide to tariff-makers. Prof. H. Parker Willis of George Washington University combated this assertion. Several papers bearing on rural conditions were read. Among these was one discussing problems of Southern agriculture by Dr. John L. Coulter, one on the *Decline of the Rural Population of the United States* by Prof. B. H. Hibbard, of the Iowa State Agricultural College, and several others. In the session devoted to immigration an important paper was ready by Prof. H. P. Fairchild of Yale University. This dealt chiefly with the question of restriction. W. W. Husband, secretary of the immigration commission, gave a careful study of the extent and character of the emigration from the United States to Canada. The final session of the meeting was devoted to *Safety and Health in the Mining Industry*. The principal papers were read by John Mitchell, S. C. Hotchkiss, of the United States public health and marine hospital service, J.

A. Holmes, director of the United States bureau of mines, and J. R. Haynes. A large increase in membership was reported. It now amounts to about 2300. Prof. Frank A. Fetter of Princeton University was elected president for 1912, and Prof. T. N. Carver was reelected secretary-treasurer.

ECUADOR. A South American republic between Colombia and Peru. Capital, Quito.

AREA AND POPULATION Estimated area of the 16 provinces, 116,000 sq. miles; estimated population (1910), 1,500,000. Galapagos islands; Area, 2400 sq. miles; population, about 500. Larger towns, with estimated population: Quito, 80,000; Guayaquil, 75,000; Cuenca, 40,000; Riobamba, 18,000.

In 1911 the number of public primary schools, instruction in which is free, was reported at 1197, with 92,947 pupils enrolled; in addition 152 municipal and 302 private primary schools. There are several institutions for secondary, higher, and professional education. The established religion is Roman Catholicism.

INDUSTRIES. The people are occupied chiefly in agriculture. The staple product is cacao, Ecuador being one of the principal sources of this article. Coffee, rice, and sugar-cane are cultivated. Valuable minerals exist, but have been little exploited. A few manufactories are established in Quito and Guayaquil. The most important manufacturing industry is the plaiting of Panama hats.

COMMERCE. Imports and exports, in thousands of sucres, have been valued as follows:

	1906	1907	1908	1909	1910
Imports	17,012	19,670	20,555	18,704	16,048
Exports	21,965	22,907	26,559	24,879	27,333

Leading imports in 1909 and 1910: Textiles (except silk), 5,522,578 and 3,440,992 sucres respectively; foodstuffs, 2,284,400 and 2,573,106; hardware, 1,138,788 and 1,096,620; machinery, 919,454 and 701,206; clothing, 640,738 and 495,758; liquors, 640,548 and 701,004; specie, 1,745,656 and 2,009,938. Principal exports in 1909 and 1910: Cacao, 14,522,418 and 15,792,114 sucres; vegetable ivory, 3,061,992 and 3,338,758; Panama hats, 2,317,146 and 2,517,150; rubber, 1,540,668 and 2,012,190; coffee, 1,056,948 and 1,471,384; gold (metal and ore), 548,736 and 498,358; hides, 452,778 and 514,506; specie, 851,270 and 720,000.

*Trade by countries, in thousands of sucres:

	Imports		Exports	
	1909	1910	1909	1910
Great Britain	6,300	4,968	2,501	2,282
United States	4,796	4,509	6,832	8,181
Germany	3,347	3,148	3,156	4,496
France	1,221	1,053	8,922	9,588
Italy	922	674	458	301
Belgium	875	652	.....	.....
Spain	663	544	585	801
Peru	226	120	321	144
Chile	203	108	806	768
Austria-Hungary .....	.....	.....	271	219
Other	151	272	1,027	573
Total	18,704	16,048	24,879	27,333

During 1910 foreign vessels entered at Guayaquil numbered 213 steam and 5 sail, with registered tonnage 402,582, nearly half British.

COMMUNICATIONS. Early in 1911 about 350

miles of railway were in operation, of which the Guayaquil-Quito line comprised 297 miles. The line from the port of Bahia de Caraquez to Quito, the capital, which was begun in July, 1909, was under construction in 1911, and was completed as far as Calceta, a distance of 34 miles. On June 30 of that year the line from Manta to Santa Ana was begun. The telegraph system is reported at 2608 miles, with over 60 offices.

FINANCE. The monetary unit is the sucre, worth one-tenth of a sovereign, 48,665 cents. Revenue and expenditure, in thousands of sucres:

	1906	1907	1908	1909	1910
Revenue	12,188	12,725	13,362	15,878	15,117
Expenditure	13,237	15,402	12,765	15,565	15,479

Customs receipts in 1910, 10,799,198 sucres. Total net debt, June 30, 1910, 43,511,024 sucres. A loan of 3,000,000 sucres was negotiated in January, 1911.

ARMY. A small standing army is maintained under the law of 1902, which requires obligatory military service from all citizens between the ages of 20 and 45, namely, 1 year in the permanent army, 10 years in the first reserve, and 15 years in the second reserve. This law has not been executed, but, beginning with 1910, there was being formed a first reserve. According to the most recent returns for 1910 the permanent army consisted of 13 battalions of infantry, 7 squadrons of cavalry, 2 squadrons of mounted batteries, 3 regiments of artillery, 1 battalion of engineers, 1 mine and troop section, and 1 regiment of coast artillery. The total number of officers was given at 3546, and the non-commissioned officers and men at less than 10,000. At the beginning of the year 1910 there was in course of formation a reserve of men between the ages of 18 and 30 to comprise 135 battalions of infantry, 7 regiments of artillery, 44 squadrons of cavalry, 1 corps of engineers, 1 battalion of marines, or a total of about 26,000 men. At the same time, a second reserve was contemplated to take men between the ages of 31 and 50, to include 81 battalions of infantry, 4 regiments of artillery, 26 squadrons of cavalry, 2 battalions of engineers, and 12 companies of marines and soldiers, or a total of about 18,000 men.

NAVY. There are reported one destroyer, one torpedo boat, three launches, one transport, and an auxiliary vessel.

GOVERNMENT. Under the constitution of December 23, 1906, the executive authority is vested in a president, elected by direct vote for four years and assisted by a cabinet of five members. The Congress consists of the Senate (32 members) and the House of Representatives (48). Gen. Eloy Alfaro was succeeded as president by Emilio Estrada for the term beginning August 31, 1911. Estrada died December 21, 1911, and Carlos Freile, president of the Senate, became acting president. Political unrest was immediately manifest, and at the end of the year an insurrection, headed apparently by friends of General Alfaro, was in progress, and General Montero was proclaimed president by the army.

On the report that the United States was to lease the Galapagos islands for a term of ninety-nine years, mobs gathered at Guayaquil

on January 27, hooted the president and stoned his house. The lease was not granted.

EDISON NICKEL IRON BATTERY. See **ELECTRIC BATTERIES.**

EDSON, JARVIS BONESTEEL. An American engineer and inventor, died January 26, 1911. He was born at Janesville, Wis., in 1845, and graduated from New York University. He enlisted in the Twenty-third New York Infantry in June, 1863, and served for the remainder of the war. After its close he saw service for three years in the navy. Returning to civil life he invented and patented a steam gauge, a method for drying gun cotton by compressed air at normal temperature, a method of sinking deep wells in clay, quicksand, etc., and many other engineering devices.

EDUCATION IN THE UNITED STATES.

STATISTICS. Preliminary statistics from the commissioner's report for 1911 show that during 1910 there were enrolled in the public schools 17,813,852 pupils, and in private schools 1,634,066. About 95 per cent. of the pupils were in the elementary schools; 340,628 are receiving higher instruction (of whom 88,561 are in normal schools). The average length of term was 157.5 days, an increase of two for the year. There were 523,210 public school teachers, of whom 26.8 per cent. were men. The value of school property was \$1,091,007,512. The public schools spent \$426,250,434, of which 1.6 per cent. was for general professional and business control, 59.4 per cent. for salaries of teachers, 1.5 per cent. for text-books and other instruction expenditures, 16.6 per cent. for buildings, sites, equipment, etc., and 21.9 per cent. for miscellaneous purposes. It cost about \$33 per pupil based on an average attendance or \$4.63 per capita of total population.

ADMINISTRATION AND PUBLIC EDUCATION. In July Dr. Elmer E. Brown resigned the office of United States Commissioner of Education and Dr. P. P. Claxton was appointed to the position. Plans which have for their purpose a large extension of the duties of the bureau are before the appropriation committees of Congress.

The number of pupils who are unable to keep up with their grades and who leave school at the earliest opportunity has continued to arouse lively discussions. In October, the United States Bureau of Education published a bulletin entitled, "An Age-Grade Census of Schools and Colleges," by George D. Strayer. This work presents the situation as found in 218 cities. It shows that only 36 or 40 per cent. of the boys and 46 or 50 per cent. of the girls who enter the public schools reach the first year of the high school, while only 10 to 12 per cent. of the boys and 18 to 20 per cent. of the girls complete the high school course.

The agitation over retardation and elimination has led school officials to consider the situation in their schools and to seek a remedy. The importance of some efficient system of keeping school records has been emphasized. Until 1907 not more than twenty-five cities published any data bearing on the ages and grades of pupils. Now a complete age and grade census may be found in the reports of more than one-half of the cities, and a committee of the Department of Superintendence is working on a system of record cards which will make it possible readily to trace the progress of pupils.

In January, the board of commissioners in

the city of Baltimore adopted a resolution directing a committee to employ a commission of three disinterested and competent persons to investigate and report on the system of instruction in the public schools of the city. The committee employed Elmer Ellsworth Brown, at that time United States Commissioner of Education, as chairman; E. P. Cubberly professor of theory and history of education in the Leland Stanford Junior University; and Calvin N. Kendall, then superintendent of schools at Indianapolis. The members of this commission and their assistants spent several weeks in studying the conditions existing in the schools, and submitted a report in the form of a bulletin published by the United States Bureau of Education. This report has been helpful not alone to Baltimore, but to cities in general in that it makes an attempt to indicate the lines along which such investigations may be conducted.

The Board of Estimate of the City of New York which controls the expenditures of the various departments of the city decided to determine if possible what relation exists between expenditures and efficiency in the city schools. For this purpose the sum of \$50,000 was appropriated. In June, Dr. Paul H. Hanus, professor of the history and art of teaching in Harvard University, was secured as chairman of a committee of inquiry. He associated with himself a number of experts in the different fields of education. The investigation was begun with the expectation of completing it by January 1, but the magnitude of the undertaking led the Board of Estimate to make a second appropriation in order that the work might be continued until July 1, 1912.

Much discussion was occasioned by the sections of the proposed charter for New York City which called for a paid board of education consisting of seven members who were to devote all their time to the duties of this office. In general this plan was opposed by all educational authorities on the ground that "it is not the business of a board of education to manage the schools in detail, but simply to supervise and control the administration of the schools by the expert officials in charge, to select these experts, and to represent public opinion in matters relating to tax-supported education." It was claimed that in cities where this plan is in operation, men of inferior professional ability are placed over the real professional heads of the school system.

In the administration of State school systems the most noteworthy event of the year was Governor Wilson's appointment of Calvin N. Kendall, formerly superintendent of the Indianapolis schools, as Commissioner of Education of New Jersey. The office was created by the last legislature, and carries with it the largest salary paid to any American State school officer.

EDUCATIONAL LEGISLATION. The legislatures of 43 States met in 1911. A large number of educational measures were considered and some important laws passed. Pennsylvania replaced two hundred general laws and about two thousand special acts by a new school code which provides, among other things, a State board of education, a new arrangement of districts according to population, and the gradual acquisition by the State of the thirteen normal schools.

Idaho, Nevada, and North Dakota also passed new codes, and South Dakota and Tennessee considered new school laws, but failed to pass

them. The legislature of New Jersey enacted a law which provides for a non-partisan board of education consisting of eight members, and elected for eight years, and for a commissioner of education to be appointed by the governor.

The legislation of 1911 showed a marked tendency to increase the powers of the State boards of education and to provide for more adequate State supervision.

HEALTH PROVISIONS FOR PUBLIC SCHOOL CHILDREN. Since 1890 there has been a noteworthy increase in provisions for conserving the health of school children. The most progressive States in this particular are those of the western and north Atlantic sections. So long as activity was confined to the detection of contagious diseases, it was largely a function of the board of health, but now that the aim includes the general physical improvement of pupils the work is often administered by the board of education.

Teachers often conduct the tests for hearing and seeing, but doctors and nurses conduct the other physical examinations. The school dentist has lately been employed in some places. The usual procedure is to examine the child and in case defects are found, parents are notified and urged to consult their family physician. If the school employs nurses, they follow up the case and aim to see that the child receives the proper treatment.

Dr. Leonard P. Ayres, associate director of the Department of Child Hygiene, Russell Sage Foundation, gives the following summary of the status of medical inspection: "At the present time (May, 1911), seven States have mandatory laws, ten have permissive ones, and in two States and the District of Columbia medical inspection is carried on under the regulations promulgated by the boards of health and having the force of laws."

Medical inspection is but one of several agencies employed in improving and protecting the health of pupils. Public sentiment has become thoroughly aroused over the dangers connected with the common drinking cup, and it is now prohibited by law in the schools of many States. Recesses in the open air are provided in most schools. The feather duster and dry dust cloth are giving way to more hygienic methods. States are insisting on suitable ventilating systems in properly arranged buildings which must be erected in healthful places. A recent development is the open air class. Such classes are often located on the roofs of city schools. A tentlike arrangement of canvas protects from rain, and in case of a disagreeable wind a side may be lowered. The desks are set on individual platforms which are movable. The children are protected from the cold by warm coats, toboggan caps, gloves, and some form of sitting-out bag; warm lunches are usually provided. Although such classes were designed for tubercular children, and even now are largely confined to those who are not healthy, the physical and mental vigor of the pupils attending such classes is leading many officials to consider the advisability of opening them to normal children.

INDUSTRIAL EDUCATION. Training for the vocations continues to be a topic of absorbing interest. The Chicago Chamber of Commerce sent Edwin G. Cooley, ex-superintendent of the Chicago schools, to study and report upon the various phases of vocational training in Germany. The New York Chamber of Commerce

appointed a committee to investigate the possibilities of commercial education in the public schools of the city. These actions are indicative of the earnest attention this matter is receiving from the public. The results of the experiments which have extended over the last six years have been studied and there is coming to be a better understanding of the difficulties involved in vocational training. The twenty-fifth annual report of the Commission of Labor which appeared in November is devoted to a comprehensive review of the industrial educational situation. In thirty States laws have been enacted which encourage and in most cases assist communities in maintaining vocational instruction.

There continues to be much diversity and confusion in the use of terms. The executive committee of the National Society for the Promotion of Industrial Education decided upon the following definitions:

Vocational Education includes all forms of specialized education, the controlling purposes of which are to fit for useful occupations.

Industrial Education denotes the field of vocational education designed to meet the needs of the manual worker in the trades and industries, including the occupation of girls and women carried on in workshops.

Agricultural Education is that form of vocational education which fits for the occupations connected with the tillage of the soil, the care of domestic animals, forestry, and other useful works on the farm.

Household Arts Education is that form of vocational education which fits for occupations connected with the household.

The report of the United States Commissioner of Education for the year 1908-09 shows that one hundred forty-two schools were giving complete trade training, preapprentice instruction, or supplementary instruction to those engaged in industrial pursuits. This number does not include fifty-three similar institutions for the colored race and fourteen for the Indians. The report further shows that in the two hundred sixty-five cities from which reports were received, 110,853 pupils were receiving some form of manual or vocational instruction. More than one-half of the cities having populations of four thousand or more provide manual training in some grades and often throughout the elementary and high-school courses. More than seventy different types of industrial activities are conducted in the schools. Joinery, pattern making, and machine shop practice are the most common subjects for boys, and sewing, cooking, and millinery for girls.

The training of teachers for the industrial subjects, and the methods of conducting the work have each received increased attention during 1911. New York began the training of teachers for vocational subjects in three normal schools. In one of these schools an evening course is maintained for mechanics who desire to fit themselves for teaching. The legislature of Massachusetts provided for an investigation of the possibilities of part-time instruction in the vocational subjects. Wisconsin started a vocational normal school, and acts passed by the last legislature make it possible for the public schools to provide certain vocational subjects and to compel apprentices to attend part-time.

MONTESSEORI SYSTEM. Reports of results ob-

tained by Mme. Maria Montessori in the case *dei bambini* (houses of childhood) in Rome have created great interest in her system for training young children. Few people have approached the problem of education with as complete a preparation as has Madame Montessori. After earning the degree of doctor of medicine at the University of Rome she became assistant doctor of the clinic of psychiatry. Her clear conception of the needs of the mentally deficient attracted the attention of prominent people and in 1908 the *Scuola Ortofrenica* or "mind-straightening school" was established with Madame Montessori as its director. In this institution were gathered all the feeble-minded children from the city asylums. So successful was the instruction that these children became mentally as efficient in many respects as normal children. These results were secured by aiding the child in his psychic development. In 1900 Madame Montessori left this school and began the study of experimental psychology in the University of Rome. This work put her in direct touch with educational practice. In 1906 she was made director of a series of infant schools located in certain blocks inhabited by poor penants. These *case dei bambini* are part of an organized system for social improvement. Teachers live in the school buildings, and a close relationship exists between the schools and the homes surrounding them. The methods employed in these schools are the direct outcome of the experience gained with the feeble-minded.

The essentials of the system may be grouped about several points which are suggested by their similarity or dissimilarity to common practice. Madame Montessori goes further even than Froebel in urging freedom for the child. There is an entire absence of all the furniture and formal arrangements that usually characterize a schoolroom. Children move about with entire freedom. As a result a real social attitude exists. Teachers are admonished to follow the manifestations of the child. This admonition has a twofold purpose. It emphasizes the principle of self-activity on the part of the child, and at the same time it puts the teacher in the proper attitude to understand the normal course of development. In practice, the system does prescribe, though not to the same extent as ordinary primary methods.

In no other system has there been such direct, systematic, even formal training of the senses. The character and extent of this training can best be understood by considering a few type exercises. Two pieces of cardboard, one of which is smooth, the other covered with sandpaper, are placed before the child. The child's fingers are passed over these surfaces and the associations "rough" and "smooth" are thus established. Different shaped insets are given to blind-folded children and they distinguish their forms and place them properly by passing the finger around the margins and thus gaining a sense impression. Bobbins are wound with silk of different colors and shades, and the children arrange the colors in order and also the shades under each color. Two pieces of cloth are fastened to opposite sides of a frame. One piece has buttons, the other button-holes, and the child learns with this to button and unbutton. The letters are taught by means of pasteboard cards on which are pasted the letters cut from fine sandpaper. Exercises such as these are numerous. A complete set of appa-

tus for a class of twenty or twenty-five pupils consists of about eleven hundred pieces.

Madame Montessori believes that the child's imagination needs little or no stimulation. She employs no stories such as are used in kindergartens and primary grades and there is no symbolism.

Several schools employing this system have been started in and around New York. The experiment has not progressed far enough to determine whether the methods will prove as effective under our social conditions as they have proved in Rome.

An English translation of Madame Montessori's book, *Metodo della Pedagogia Scientifica*, is being edited by Prof. Henry W. Holmes of Harvard University.

PROVISIONS FOR EXCEPTIONAL CHILDREN IN SCHOOLS. Recently increased attention has been given to the care of exceptional children. As now used, the term exceptional children refers to such as cannot work most satisfactorily with the great majority of children. It includes those who are feeble-minded, morally defective, slow, or backward, as well as those who are especially talented. It does not include the small number of children who are so mentally deficient as to be proper institution cases. Provisions for these children take the form of special classes or of such an arrangement of the course of study in the regular public school that pupils are able to make as rapid progress as their ability permits. Typical classes of this sort are those for epileptics and the subnormal, disciplinary classes, ungraded classes in which only a few pupils are taught by one teacher, parental schools, etc. A newer development is classes for the exceptionally bright. In such classes the work of the seventh and eighth grades and the four high-school grades is done in five years.

Bulletin 1911, No. 14, by the United States Bureau of Education shows that of the 898 cities from which data were secured 17 per cent. made provision for morally exceptional children, 11 per cent. had classes for the mentally defective, 25 per cent. for backward children, while only 6 per cent. provided for the exceptionally gifted. Ten per cent. made provision for the physically exceptional children, including those that were blind, deaf, crippled, stammerers, etc. Thirty-nine per cent. provided for non-English-speaking children and those entering school late. In New Jersey all children three or more years behind their grade must be placed in special classes.

Among the plans designed to break the "lock-step" of common promotional systems, the ones most favored by educators are the "North Denver plan," which provides a minimum amount of work to be accomplished by all the pupils and supplementary work which may be done by the brighter ones; the "Cambridge plan," which so arranges the course of study that it may be completed in eight, nine, or ten years; and the "Pueblo plan," which is largely an individualistic plan of grading and promoting.

TEACHERS' PENSIONS. The pensioning of teachers in the common schools has been a development of the past eleven years. At first, attempts were made to provide retirement funds without resorting to salary deductions. Little was known concerning the longevity of teachers as a class, and as a result the early measures were more or less defective in that insufficient

revenues were derived. Rhode Island, Maryland, and New Jersey provide pensions from public funds. During 1911, eleven States took important steps to pension teachers in city public schools. There is some variation in the plans, but in general the retirement fund is largely derived from salary deductions or assessments of from 1 to 2 per cent., and teachers become eligible to pensions after thirty to thirty-five years of service.

TEACHERS' SALARIES. The average monthly salary of women teachers in 1908-9 was \$50.08 and of men \$83.39. Several States have raised the minimum pay of their teachers. Pennsylvania increased the minimum salary from \$40 to \$45. In Wisconsin no State aid can be given to any vocational school that does not pay every teacher at least \$60 per month. In Indiana, the minimum salary of teachers who are exempt from examination was increased one-sixth. The elementary school teachers of Boston conducted a campaign which will result in increases in their salaries. The most prominent legislation affecting teachers' salaries was the so-called "Equal Pay for Equal Work" act passed by the New York State legislature to apply to the teachers of New York City. Measures similar to this had failed in five successive legislatures. By the terms of this act the board of education has the right to fix the salaries of teachers, but there must be no discrimination on account of sex.

VOCATIONAL GUIDANCE. Until recently, pupils who left school at the age of fourteen or sixteen to become wage-earners did so with little or no knowledge of how to apply their energies to the best advantage. As a result, it was often several years before they found profitable positions. To avoid this period of waste, the demand has arisen for some means of acquainting both parents and pupils with the opportunities, risks, and advantages of the various occupations. This activity, under whatever form it is conducted, is called "vocational guidance." The attempt is made to reach the pupil during the later years of his school life and have him consider seriously the problem of a vocation.

Although the work is done in close connection with the school, vocational guidance is at present conducted almost entirely by voluntary organizations, of which the best known are the students' aid committee of the New York High School Teachers' Association and the Vocational Bureau of Boston. A conception of the character of this movement may be gained from an enumeration of some of the more important activities which are conducted in various cities. Vocational pamphlets have been prepared on such topics as, "Choosing a Career," "Opening for Boys in Machine Shops," "The Baker," "The Dressmaker," "The Architect," etc. Conferences are held with parents and pupils, and advice is given regarding the best preparation for any desired occupation. Employers are investigated and the results made available to those who desire such knowledge. Pupils are placed in situations and their proper training directed.

BIBLIOGRAPHY. Among the helpful educational books of the past year were, *A Brief Course in the Teaching Process*, by George D. Strayer; *Educational Values*, by William C. Bagley; *The Vocational Guidance of Youth*, by Meyer Bloomfield; *Educational Problems*, by G. Stanley Hall; *A Cyclopædia of Education*, edited by Paul Mon-

roe; *Industrial Education*, the twenty-fifth annual report of the United States Commissioner of Labor; *American Report of the International Commission on the Teaching of Mathematics*, published by the United States Bureau of Education in Bulletin 1911, Nos. 6, 7, 8, 9, 12, 13, and 16; *The Individual in the Making: A Subjective View of the Child, with Suggestions for Parents and Teachers*, by Edwin A. Kirkpatrick; *Agricultural Instruction in the Public High Schools of the United States*, by Clarence H. Robison; *History of Public Permanent Common School Funds in the United States, 1795-1905*, by Fletcher H. Swift; *Individuality*, by Edward L. Thorndike. See AGRICULTURAL EDUCATION.

EDUCATION, INDUSTRIAL. See EDUCATION.
EDUCATION, VOCATIONAL. See EDUCATION.

EDWARDS, JOHN PASSMORE. An English editor and philanthropist, died April 22, 1911. He was born in Cornwall in 1824. At the age of eighteen he went up to London and obtained a subordinate position in a publishing house. After ten years of this service, when he had accumulated a small sum of money, he set up business as a publisher on his own account. The business did not succeed and he was obliged to begin anew. After making some profits by conducting a scientific journal he paid his contributors in full. In 1876 he acquired the *Echo*, a half-penny paper. In this he at once began fighting for various reforms, particularly the prevention of gambling and horse-racing among the poorer people. He at the same time took an active interest in politics and from 1880 to 1885 occupied a seat in the House of Commons as a Liberal. He followed Mr. Gladstone until the introduction of the Home Rule bill. This he could not support. Before his retirement from Parliament in 1885 he had become a wealthy man, largely through the successful management of the *Echo*. Having made this large fortune he set himself to work to combat the two great enemies of the working classes, ignorance and disease. He made special efforts to render books and a technical education accessible to the greatest possible number. He also encouraged the extension of hospitals and convalescent homes. He founded a great number of Passmore Edwards Institutions, mostly in London and Cornwall. One of his last great gifts was the presentation of the Passmore Edwards Sailors' palace to the British and Foreign Sailors' Society for its headquarters. This building was opened in 1903. He was twice offered knighthood, but declined both times. A proposal was made that the city of London should make him an honorary freeman, but his attitude in respect to the Boer War made him so unpopular that the vote of the council went against him. His name is chiefly associated with free libraries, of which he founded twenty-five. He presented upwards of 30,000 volumes to public libraries, hospitals, convalescent homes, reading-rooms and other institutions. He was a delegate to many peace conferences, and was perhaps the most widely known English philanthropist at the time of his death.

EGGLESTON, GEORGE CARY. An American journalist and writer, died April, 1911. He was born in Vevay, Ind., in 1839, and was educated at Asbury (now De Pauw) University, and at Richmond College, Va. He practiced

law in Virginia until the outbreak of the Civil War, when he enlisted in the Confederate army and served until 1865. After the war he filled important newspaper positions in New York. He was for six years literary editor of the *Evening Post*, was editor-in-chief of *Hearth and Home*, and from 1884 to 1889 was editor of the *Com-American Advertiser*. From 1889 to 1900 he was an editorial writer for the *New York World*. He wrote many books for boys. Among his writings may be mentioned: *How to Educate Yourself* (1872); *Big Brother* (1875); *Camp Venture* (1901); *The Master of Warlock* (1903); *The First of the Hoosiers* (1903); *The Warrens of Virginia* (1908), and *Irene of the Mountains* (1909). In 1910 he published a volume of reminiscences entitled *Recollections of a Varied Life*. He edited Hayden's *Dictionary of Dates* and compiled *American War Ballads*.

EGYPT. A country of northeastern Africa, in effect a British dependency, though nominally under the suzerainty of Turkey. Capital, Cairo. Area, exclusive of Egyptian Sudan, about 400,000 sq. miles; population (1907), 11,189,978 (exclusive of nomadic Bedouins). Number of government inspected kuttabs (indigenous schools) in 1909, 3582; with 190,875 pupils; grant-in-aid, £E21,479. Estimated expenditure on elementary vernacular education in 1910, £E64,000. Schools other than kuttabs (1907-8), 735, with 113,430. There are secondary, special, and industrial establishments, and eleven professional colleges.

Mohammedans (1907), 10,366,826; Copts, 706,322; Greek Orthodox, 78,953; Roman Catholics, 57,744; Jews, 38,635; Eastern Christians, 27,937. The Mosque and University of El Azhar at Cairo had (1908) 329 professors and 9940 students; the Mosque of El Ahmadi at Tanta, 69 and 3607.

PRODUCTION, COMMERCE, ETC. Area (1909) under wheat, 1,240,264 feddans (1 feddan=1.038 acres); corn, 1,796,745; barley, 423,293; rice, 271,820; beans, 566,688; cotton, 1,597,055; sugar-cane, 43,982. Number of date-palms, 5,966,010. Sugar crop (1909), 4,530,270 kilograms (value, £E80,640); cotton, 6,751,133 cantars (1 cantar=44.9 kilograms).

The commerce for three years is given in pounds Egyptian (£E=\$4.943):

	1908	1909	1910
Imports, mdse.....	25,100,397	22,230,499	23,552,826
" specie.....	4,205,083	7,010,195	12,964,245
Exports, mdse.....	21,815,673	26,076,239	28,944,461
" specie.....	4,671,206	6,457,588	7,046,151

The principal articles of export were in 1910 cotton (£E24,242,000), cotton-seed (£E2,160,000), cigarettes (£E387,000), rice (£E288,000), oil-cake (£E283,000), onions (£E265,000), and hides (£E237,000). The principal countries of origin and destination follow, value in thousands of pounds Egyptian (1910):

	Imps.	Exps.		Imps.	Exps.
Gr. Brit....	7,309	14,343	Aus.-Hun.	1,647	1,435
Turkey	2,905	666	Ger.	1,262	3,089
Russia	2,773	1,680	Italy	1,169	825
France* ...	2,703	2,480	Belgium ...	871	79

* And Algeria.

Vessels entered (1910), 6586, of 5,425,314 tons; cleared, 6564, of 5,441,287.

Railway lines in operation (1911): 2904 kilometers state, 1228 kilometers private companies (see RAILWAYS, AFRICAN); telegraph lines 5913 kils., wires 20,503; offices 369; telephone lines 384 kilometers, wires 2088; post offices 1645.

ARMY. The Egyptian army was under command of a British officer with the title *Sirdar*—in 1911, Lieut.-Gen. Sir Reginald Wingate—who was also governor-general of the Sudan. One hundred and eighty-eight British officers were attached to the Egyptian army, which is formed by conscription, as all male inhabitants are liable for military service. The statutory period is 6 years in the army, 5 years in the police, and 4 years in the reserve, but as 150,000 young men are always available, the burden of military service is light, and recruits are carefully selected. The peace strength is about 9000 officers and men, while the effective war strength is about 18,000, including 800 cavalry, 600 in the camel corps, 200 arab battalions, 1250 in the artillery, and 10,000 infantry. The cavalry is recruited from the fellahs of the Delta, while the Sudanese battalions are recruited by voluntary service. The Egyptian artillery has been carefully trained by British officers, and is armed with Krupp guns, for both the field artillery and the mountain batteries, and the light batteries, some of which have Krupp guns carried by mules with a second line of camels. The British government in 1911 maintained in Egypt 1 cavalry regiment, 1 horse battery, 1 mountain battery, 1 company of royal engineers, 4 battalions of infantry, and 3 battalions of Coldstream Guards, and other details of troops, making a total number of 6063 officers and men under the command of Maj.-Gen. Sir J. G. Maxwell. To the maintenance of this force the Egyptian government contributed £150,000.

FINANCE AND GOVERNMENT. Revenue and expenditure for three years are given in pounds Egyptian (£E=\$4.943):

	1908	1909	1910
Revenue	15,521,775	15,887,313	15,965,693
Expenditure	14,408,144	16,226,841	14,414,499

The budget estimate for 1911 is detailed as follows: Revenue, £E15,500,000 (direct taxes, £E5,565,000; other taxes and dues, £E5,246,000; receipts from revenue-earning administrations, £E3,727,000; etc.). Expenditure, £E15,000,000 (cost of administration, £E5,030,231; tribute and debt, £E4,596,154; expenses of revenue-earning administrations, £E2,503,097; defense, £E855,031; pensions £E550,000; Sudan deficit, £E360,000; etc.). Public debt (December, 1910), £89,201,060.

The practical administrative head of the government is the British agent, consul-general, and minister plenipotentiary (1911, Field Marshal Viscount Kitchener of Khartum). British financial adviser in 1911, H. P. Harvey. The khedive is Abbas Hilmi. (since January 8, 1892). In him and in his ministers is vested also the final legislative power.

HISTORY. Considerable excitement was caused in January, 1911, by the sentence of the Nationalist leader, Mahomed Farid, to two months' imprisonment, for having written a laudatory preface to a volume of seditious poems. On March 6 the Coptic Congress met at Assiut to consider the grievances of the Copts, especially as to education and government appointments,

and it was decided to refer to the authorities the question of Coptic representation in the Legislative Council and provincial councils. As a counter demonstration against the Coptic congress it was decided to call an Egyptian Mussulman congress which would represent the views of the leading Mohammedans. At this congress, which was held on April 29, the Coptic grievances were dismissed as of no importance. In general, condition were more peaceful than in the preceding year. Sir Eldon Gorst reported in the spring of 1911 that since November, 1910, there was less difficulty with the Legislative Council than there has been, but at the same time he declared his opinion that co-operation with a native ministry was not at present compatible with the policy of "encouraging the development of so-called representative institutions." Sir Eldon Gorst's death on July 17 was a serious loss to the Egyptian administration. Lord Kitchener of Khartum was appointed his successor.

EGYPT. EXCAVATIONS IN. See **ARCHÆOLOGY.**

ELECTORAL CORRUPTION. See **OHIO.**

ELECTORAL REFORM, BELGIAN. See **BELGIUM.**

ELECTRICAL APPARATUS, MILITARY. See **MILITARY PROGRESS.**

ELECTRICAL MACHINERY. See **DYNAMO-ELECTRIC MACHINERY.**

ELECTRICAL INDUSTRIES. Despite the fact that 1911 ranked as a dull year in business generally, the electrical industries maintained their normal rate of increase. The most reliable estimates available for the past two years are as follows:

	1910	1911
Electrical manufactures	\$ 300,000,000	\$ 325,000,000
Electric railway earnings	520,000,000	575,000,000
Central station earnings	300,000,000	375,000,000
Telephone earnings....	275,000,000	310,000,000
Telegraph earnings....	65,000,000	75,000,000
Isolated plant service..	100,000,000	125,000,000
Miscellaneous electric service	75,000,000	100,000,000
Total	\$1,635,000,000	\$1,885,000,000

ELECTRICAL POWER, TRANSMISSION OF. See **ELECTRIC POWER.**

ELECTRIC BATTERIES. The value of the storage batteries sold in America during 1911 exceeded by 50 per cent. the highest previous record, owing largely to the rapid development of the electric vehicle and of electric train lighting. This class of service demands a battery of large capacity per unit weight and capacity which is well sustained over a long period of life and severe service. These requirements have stimulated great activity in the development of new types of grid construction. Pasted plates have come into almost exclusive use. Practice tends to the use of a lattice framework with diamond-shaped apertures into which the active material is pressed. This results in a thin plate of large capacity and excellent retaining power. The envelope form of grid marks a radical departure from earlier standards. A successful representative of this class consists of a vertical row of conducting rods about which cylinders of active material are held in place by perforated containers of hard rubber, the grid being completed by con-

ducting top and bottom cross-bars. Exceptional length of life is claimed for this form of grid as the shedding of active material and consequent loss of capacity is prevented. The container is sufficiently flexible to allow the expansion of the active material without buckling or distortion.

The Edison nickel-iron battery has been an active competitor in the field of propulsive and portable batteries. Its chief advantages have proven to be its long life, ability to withstand severe electrical treatment, and light weight. Experience has brought to light a number of disadvantages of a serious nature. Its efficiency is much lower than that of the lead cell, due to its high internal resistance. Above a temperature of 40° Fahr. it is little affected by temperature changes, but below this point it quickly becomes inoperative. In some cases it has been necessary to instal heating coils in the containing box to maintain the necessary temperature when the battery stands idle.

A new and promising field for the storage battery has been opened in connection with the handling of baggage and package freight in railroad terminals. During 1911 a large number of battery-propelled trucks displaced hand-operated trucks, resulting in a great increase in handling capacity and a great reduction in cost. As compared with the electrical telferage system, the battery trucks are much more flexible and require little or no rearrangement of existing terminals. The use of battery-propelled street cars has increased notably. On one New York line alone sixty-five such cars are now equipped with Edison cells. This type of battery continues to enjoy a distinct pre-eminence in this field, due to its light weight and the rapid charging rate which it permits.

ELECTRIC LAMP TRUST. See **TRUSTS.**

ELECTRIC LIGHTING. The chief event in the field of electric lighting in 1911 was easily the commercial advent of the drawn-wire tungsten lamp, and the practical retirement of the pressed-filament lamp from the market. The advantages of the new lamp are almost entirely in the realm of greater durability in transportation and in service. The continuous filament of the new lamp requires more points of support than the former four and five loop types, and is therefore slightly less efficient. An immediate result of this step was the practical elimination of the tantalum lamp and a very great reduction in the sales of carbon lamps. The metallized carbon-filament lamp, however, made notable gains. Present indications point to the tungsten and metallized carbon lamps as the most fit survivors of recent evolution. Belgian manufacturers of tungsten lamps have developed an inclined and a horizontal mounting of the filament with a view to improving the downward light distribution. In America, however, the large development of efficient and attractive reflectors for the standard form of lamp have left little to be desired in the matter of light distribution.

Among the arc lamps the most important improvements have related to long-burning flaming arcs. For these long and heavily mineralized electrodes of large diameter are employed with a vertical mounting. Both electrodes are fed and the arc is maintained at a fixed level. A positive air circulation is provided which sweeps the fumes from the arc into a condensing chamber with a large cooling surface, thus pre-

venting the settling of dust upon the globe. A life per trim of 100 hours is readily obtained by this process. The light distribution is especially favorable for the illumination of wide spaces. This type of lamp is finding large favor for the lighting of broad streets and public squares.

The range of service afforded by the mercury arc was much extended by the light balancing reflectors of fluorescent material and the development of a combination unit consisting of a curved mercury tube and tungsten lamps in a diffusing bowl. The resulting light is considerably superior in efficiency and whiteness to that of the tungsten lamp. The quartz tube mercury arc, which had been developed in previous years in Germany, made its appearance in America during the year, and bids fair to be an active competitor with earlier types. It is much handicapped, however, by the high cost of the quartz tube.

Two new illuminants of interest were brought out during the year in France. Professor Urbain of the University of Paris has invented a quartz tube arc between a negative terminal of mercury and an anode of tungsten. The latter becomes intensely heated by the bombardment of the arc stream and the two in combination yield a brilliant white light of high efficiency. The production of ultra-violet radiation by this form of arc is said to be exceptionally great, and it is expected to be of great utility for purposes of sterilization. A new form of vacuum tube somewhat resembling the Moore type, is undergoing experimental development. The gas employed is neon, which is enclosed in glass tubes about seven feet long and plied to such a tube produce brilliant luminescence with an efficiency equivalent to 1.25 candles per watt. A difficulty to be overcome is the relatively short life of the tubes, but the prospect for this lamp is considered very promising, as it is distinctly superior to the Moore tube in brilliancy and efficiency.

The year 1911, like 1910, was distinguished by the immense amount of research expended upon scientific problems closely associated with electric lighting. Notable among these were the radiant efficiency of incandescent lamps, high temperature measurements, proposed primary light standards, and the dependency of visual acuity on the color of light.

ELECTRIC PROPULSION OF SHIPS. See NAVAL PROGRESS.

ELECTRIC RAILWAYS. While the developments in electric traction in 1911 were in no sense revolutionary, they were of such a character as greatly to strengthen the confidence of engineers in the ability of electric motive power to meet the severest conditions. The successful operation of the electrified Hoosac Tunnel, and the extraordinary record for reliability attained by the electrical equipment of the Pennsylvania Tunnel at New York, were important contributors to this end. The Hoosac Tunnel is the longest in the United States, and represents a particularly difficult situation for electric power on account of the close clearances and presence of moisture. The 11,000-volt overhead trolley by which single-phase current is supplied to the locomotives operated without a single failure, while the record of the motors is scarcely less gratifying. A second important development in the New Haven system, was the yard construction for the 11,000-volt single-

phase electrification of the Harlem division. The close of the year brought the announcement of the decision to proceed at once to the electrification of the main line from Stamford to New Haven, which will add forty-one miles to the present electrified zone of thirty-four miles. The great success of this venture points to the ultimate extension of single-phase electrification to Boston, and its possible adoption throughout the entire New England system.

During the first year of operation of the Pennsylvania tunnel and terminal, 176,180 electrically operated trains were run with but thirteen delays, totaling ninety-eight minutes attributable to the locomotives or motors. The operating success of the New York Central terminal has been equally conspicuous when the difficulties attendant upon the work of reconstruction are considered. The New York Central extended its electric zone from Hastings to Tarrytown during the year. In addition to the above, the electrification on the 1200-volt direct-current system of the Oakland, Berkeley, and Alameda lines of the Southern Pacific system in California is of significance in the realm of main line traction.

The growth of interurban and suburban systems fell behind the record of preceding years in 1911. It is suggested that the fare reductions enforced on the steam lines by legislative action account for this retardation. In this field the extension of the 1200-volt direct-current system has been most noteworthy, several hundred miles having been equipped during the year. The tendency toward still higher trolley voltages for direct currents is indicated by the installation of a 1500-volt system. These advances are made possible by the constant improvement of the commutating conditions of interpole rotary converters. In all 1191.9 miles were added to the electrically operated trackage of the United States and Canada in 1911.

Subway transit received a great impetus during the year. Important extensions were made in Brooklyn, New York, and Boston, while the situation in New York makes a much greater extension imperative. In Chicago an engineering commission was appointed to consider the situation and submit feasible plans, with excellent prospects for early construction.

In the city surface systems the most important items to be noted are the growth in popularity of prepayment cars, the extensive use of the interpole motor, a great increase in the use of trailers and in the application of multiple-unit control, the increase in the use of heavy steel cars and, on the other hand, of very light cars for storage battery propulsion.

In the advance of heavy traction in Europe the single-phase system continues to predominate. In Sweden an interesting installation is the 80-mile line from Kiruna to Riksgården, entirely within the Arctic circle. The power is brought from a water plant at Porjus, a distance of 120 miles over a single-phase line of 50,000 volts, and is stepped down to 15,000 volts for the trolley wire. Single-phase power is also being installed on the Loetschberg line in Switzerland. A 2000-horsepower locomotive has been developed for this line which is capable of hauling a 310-ton train up a 2.7 per cent. grade at a speed of twenty-seven miles per hour. Experiments of great importance are being carried on in France and Germany with a view to combining the now well recognized merits of single-

phase alternating current for transmission with the superior motive power afforded by direct currents. An experimental French locomotive was given a trial on the Midi system with a mechanical rectifying outfit consisting of a commutator driven by a synchronous motor for supplying direct current to the motors. The control of voltage and speed is obtained by shifting the brushes on the commutator. The power factor obtained was excellent, above .50 when starting, and from .95 to .98 when running. The efficiency from line to rails is reported to be 78 per cent. In Germany Hartmann and Braun have developed a high-power mercury arc rectifier capable of converting currents as great as 300 amperes at voltages well adapted to direct-current motor operation. The departure from ordinary practice consists in forming the mercury arc in a steel tube which is artificially cooled. The tube is made in two parts insulated from each other by a gasket, and is said to have a practically indefinite life under conditions as severe as those of railway service. One of the American manufacturing companies is engaged in the development of a similar device with a view to its use for car and locomotive operation.

ELECTORAL REFORM. Under this head is discussed the progress in 1911 of those movements designed for the purpose of bringing the people into more active participation in elections and legislation, and for improving the conduct of elections. These movements include the initiative and referendum, recall, short ballot, direct primaries, direct election of United States senators, legislation against corrupt practices in elections, and presidential primaries.

INITIATIVE AND REFERENDUM. The initiative gives the people the power to originate laws. If a certain percentage of the voters sign a petition for a law and file it with the proper official, it must come before the legislature. The referendum is the referring of legislation to the people for final rejection or acceptance. The referendum and initiative provide for direct legislation, that is, legislation directly by the people. They are employed in municipalities as well as in States.

At the end of 1911 they were in force in 209 cities in twenty-five States, and were a part of the fundamental law for State purposes in eleven States: Maine, Missouri, South Dakota, Arkansas, Oklahoma, California, Colorado, Arizona, Montana, Nevada, and Oregon. State legislatures in 1911 provided for submission in 1912 of the initiative and referendum to the people in eight other States, Washington, Idaho, Wyoming, North Dakota, Nebraska, Florida, Wisconsin, and Indiana. The legislature in Ohio granted the initiative and referendum to all cities. In Kansas, Massachusetts, and Illinois, the initiative and referendum passed both houses of the legislature, but lacked a constitutional majority in one house. In Minnesota and Michigan it passed one house of the legislature by the required majority, but lacked a few votes in the other house.

RECALL. The recall is a provision for the retirement of an elected officer before the expiration of his term of office, by the signing of a petition of a proportionate number of the electors who voted for him, demanding another election. It is usually found in conjunction with the initiative and referendum, and is most com-

monly employed in municipalities. The recall as applied to the judiciary is a feature of the movement which was brought prominently before the people in 1911 as the result of the incorporation of a provision for the recall of judges contained in the constitution of Arizona. A full discussion of this will be found under **ARIZONA**. The question of the recall of judges was submitted to the voters of California in an election in 1911, and was carried by a substantial majority (see **CALIFORNIA**). During the year the right to recall was granted to citizens in Idaho, Montana, North and South Dakota, Washington, Wisconsin, Wyoming, and California. See also **WASHINGTON**, for use of the recall in Seattle and Tacoma.

DIRECT PRIMARIES. Several important measures were passed in State legislatures in 1911, providing for more direct participation by the people in elections in both State and national elections. In New York, after an effort which began with Governor Hughes in 1909, a direct primary law known as the Levy law was passed. This was a compromise measure and did not meet with general approval by either the advocates or opponents of direct primaries (see **NEW YORK**). In New Jersey the direct primary law was modified by the Geran law. For a discussion of this see **NEW JERSEY**. Important amendments to the direct primary laws were made in Maine, Massachusetts, and Wyoming. In South Dakota the measure will be referred to the people in 1912. For a discussion of the Maine law see **MAINE**. Revisions of more or less importance were made to the direct primary laws of Wisconsin, Missouri, Kansas, Nebraska, Nevada, and California.

DIRECT ELECTION OF SENATORS. A joint resolution providing for the direct election of senators was introduced in the second session of the Sixty-first Congress. This passed the House, but on February 28, 1911, it was defeated in the Senate by a margin of four votes. On the roll call 54 senators voted in favor of the resolution and 33 against it. A joint resolution requires a two-thirds vote. The resolution was defeated by the votes of Southern senators, who, while they favored the proposal for the direct election of senators, declined to vote on the so-called Sutherland amendment, which provided that the control of senatorial elections should remain in the hands of the federal government. The resolution in its original form provided that the control of elections should be taken from the federal government, where it is now secured by Section 4 of Article I. of the Constitution, and placed in the hands of the State legislature. The Southern senators who voted against the resolution with the amendment, expressed the fear of negro domination if there should be federal control of the elections. The joint resolution was reintroduced in the first session of the Sixty-second Congress, and on April 14 it passed the House of Representatives by a majority of 296 to 16. Several amendments, including one similar to the Sutherland amendment in the Senate, were defeated. On June 12 the Senate by a vote of 64 to 24 passed the resolution with an amendment submitted by Senator Bristow, which was practically the same as the Sutherland amendment. This provided that the control of elections shall remain in the hands of the federal government. The resolution passed only after the vote of Vice-President Sherman had broken a tie of 44

to 44. As the House of Representatives had passed the resolution without amendment it was necessary for the bill to go into conference and it did not emerge before Congress had adjourned, so that the resolution did not become a law.

During the year seven States, California, Kansas, Minnesota, Montana, New Jersey, Ohio, and Wisconsin enacted through their legislatures measures providing for the Oregon plan of pledging candidates for the legislature to vote for the people's choice for United States senators, as indicated in the general primary election held previously. In Ohio the Oregon plan was adopted by the legislature, but vetoed by the governor. In South Dakota it was defeated in the legislature, but was submitted to the people by initiative petition, and is to be voted on at the general election in 1912.

CORRUPT PRACTICES. At the extra session of the Sixty-second Congress, an act was passed to provide for the publicity of contributions for the purpose of influencing elections at which representatives in Congress are elected. This act prohibits any candidate for representative from giving, contributing, expending, using, or promising any sums in the aggregate exceeding \$5000, in any campaign for his nomination and election. A Senator is limited to \$10,000. Sworn statements of all expenditures must be filed with the clerk of the House of Representatives at Washington by candidates for Congress, and with the clerk of the Senate by candidates for the Senate, not less than ten nor more than fifteen days before the time for holding any primary election or nominating convention, and not less than ten nor more than fifteen days before the day of the general or special election at which the person is to be elected.

The legislatures of 1910-11 in the various States amended the corrupt practices acts and adopted them to provide for publicity of campaign expenses. This was done in Idaho, Indiana, Maryland, New Hampshire, Ohio, South Dakota, Wisconsin, New Jersey, Wyoming, and California. In November, 1912, an election was held in Colorado upon the corrupt practices law initiated by the people. In New York, North Dakota, and Maine stringent acts or amendments were added to the present law.

SHORT BALLOT. The short ballot is an attempt to simplify elections by placing only a few officers in nomination at one time and providing that only important officers be elective. Two short ballot amendments were submitted at the special election held in California on October 10, 1911; and both were adopted by the people. The movement is in a theoretical rather than a practical stage at the present time.

PRESIDENTIAL PRIMARIES. The presidential primary is a device to enable the voters at large to record their choice for candidate for the presidency. It was little heard of previous to 1911, but in that year it was widely discussed. Provisions for the presidential primary exist as a statute in six States, New Jersey, Wisconsin, Nebraska, North Dakota, Oregon, and California. The general nature of these statutes may be indicated by citing the provisions of the California measure. This provides that the name of any person may be put upon the ballot at the presidential primary election to be held in May, 1912, through the filing of a petition signed by 1 per cent. of the voters of any party in each Congressional district. It is provided that any

such person may, within thirty-five days of the filing of the petition, file a declaration that he is not a candidate and does not wish his name placed on the ballot, in which case his name shall not appear thereon.

In addition to the States which have provided for the presidential primary by formal statutes, South Carolina and Louisiana have it as a party rule. Other States have what amount to its equivalent. In Pennsylvania delegates to the national convention are elected by direct primaries and candidates for delegates are permitted to print on the ballot the name of the candidate for the presidency whom they wish to support.

The presidential primary had its chief support among the members of the progressive wings in both Democratic and Republican parties in 1911. An attempt was made to indorse the device at the meeting of the Republican national committee, held in December in Washington. But this was not successful. See *UNITED STATES, section Election of 1912*. The chief objections urged by the opponents of the presidential primary are that it would intensify factional bitterness, would add to the expense of national elections, and that especially in 1912 it would confine the choice of all Republicans to the candidacy of Mr. Taft and Mr. La Follette, who were the only avowed candidates. This is on the assumption that only the names of avowed candidates could be placed on the ballot.

The chief merit of such a primary in the opinion of those who support it, would be the practical elimination of the national nominating conventions and the opportunity given the people at large of recording their choice for the presidency.

Indications were that in 1912 the movement would extend to a number of other States. The Democratic State platform in Arizona committed that party to the reform, and the Republican State committees of Massachusetts and Ohio openly supported it. There was a strong sentiment in its favor in the Democratic party in Massachusetts, and progressives of both parties in Kansas and Missouri were warm advocates of the measure. Although, as noted above, the Republican national committee by a majority of the votes refused to advise employment of the presidential primary, the call for delegates permitted, at the discretion of State committees, primary elections in those States where there is a primary law, though such action was not mandatory.

ELECTRON THEORY. See *PHYSICS*.

ELEMENTS, NEW. See *CHEMISTRY*.

ELIOT, AUGUSTUS G. An American physician, died in May, 1911. He was born in Woodstock, N. Y., in 1821. He was educated at New York University and at Yale, where he graduated in 1839. Four years after he received his degree as a physician from the College of Physicians and Surgeons, New York. He later became visiting physician to New York Hospital and to Bellevue Hospital. He was one of the oldest graduates of Yale University and was one of the founders of the New York Academy of Music. For many years previous to his death he lived abroad.

ELIOT, CHARLES W. See *LITERATURE, ENGLISH AND AMERICAN, Political and Social Science*.

ELIZABETH (N. J.) PUBLIC LIBRARY. See **LIBRARY PROGRESS.**

ELKINS, STEPHEN BENTON. United States senator from West Virginia, died January 4, 1911. He was born in Perry county, Ohio, in 1841, and received his early education in the public schools of Missouri. He graduated from the University of Missouri in 1860. In 1864 he was admitted to the bar and in the same year went to New Mexico, where he acquired a knowledge of the Spanish language and began the practice of law. In 1864-5 he was a member of the Territorial legislature of New Mexico and was later Territorial district attorney. In 1868-9 he was attorney-general and from 1870 to 1872 was United States district attorney. He served as delegate in the Forty-third and Forty-fourth Congresses in 1873-7. During his first term in Congress he was made a member of the Republican national committee, on which he served for three presidential campaigns. After leaving Congress he removed to West Virginia and devoted himself to business affairs. He became largely interested in coal-mining and railroads and founded the town of Elkins. In 1891 he became one of the most prominent figures in the politics of West Virginia and was also conspicuous in national affairs. In 1891 he was appointed secretary of war by President Harrison and served throughout the latter's administration. In 1894 he was elected to the United States Senate to succeed Johnson M. Camden and was reelected in 1901 by the unanimous vote of the Republican members of the legislature. He was again unanimously reelected in 1907. His term of service would have expired in 1913. Senator Elkins was perhaps the most popular member of the Senate, both with his party associates and with Democratic senators as well. He was of the more conservative type and was identified with the reactionary element in the Senate. He was a member of many important committees and had charge of the amendments to the Interstate Commerce act, which resulted in the railroad bill passed in 1910. He also had charge of the Railway act, which was known as the Elkins act, passed by Congress in 1903.

ELMAN, MISCHA. See **MUSIC.**

ELY, SMITH. An American public official, formerly mayor of New York city, died July 1, 1911. He was born at Hanover, N. J., in 1825, and graduated in law at New York University in 1862. He did not, however, practice law, but entered the leather business, in which he was engaged until 1878, when he retired. He took an active interest in politics and was a member of the New York State Senate in 1857. He was elected to the Forty-second and Forty-fourth Congresses, resigning from the latter in 1876. In the following year he was elected mayor of New York city. This was during the prosecution of the famous "Tweed Ring." Mr. Ely had been a strong opponent of Tweed and his associates. His administration was a vigorous one and did much to better conditions in the city following the Tweed rule. Mr. Ely amassed a large fortune, a considerable portion of which was bequeathed to charitable and educational institutions. See **GIFTS AND BEQUESTS.**

EMBRYOLOGY. See **ZOOLOGY.**

EMMONS, SAMUEL FRANKLIN. An American geologist, died March 28, 1911. He was born in Boston in 1841 and graduated from Harvard in 1861. He studied at Paris and in Berlin.

He was geologist of the United States Geological Survey in the exploration of the fortieth parallel from 1867 to 1877. Two years thereafter he conducted a cattle ranch in Wyoming and then again became connected with the United States Geological Survey, in which position he remained until the time of his death. He was a member of many learned societies both in the United States and in foreign countries. He was for three terms vice-president of the American Institute of Mining Engineers. He was the author of *Descriptive Geology of the Fortieth Parallel* (written with Arnold Hague, 1877); *Geological Guide Book to the Rocky Mountains*; *Geology of Lower California* (1890); *Geological Distribution of the Useful Metals in the United States* (1893); *Progress of the Precious Metal Industry in the United States* (1893); *Geology of Government Exploration* (1896); *Theories of Ore Deposition, Historically Considered*; and *Biography of Clarence King*. He also contributed papers on geology to technical journals and wrote many official reports.

EMPEROR WILLIAM SCIENTIFIC RESEARCH FOUNDATION. See **CHEMISTRY, INDUSTRIAL.**

EMPLOYERS' LIABILITY. PROGRESS IN 1911. This subject, which has received an unusual amount of attention during the past few years, was given even greater attention during 1911. A number of the investigations begun by State commissions in preceding years were either completed or continued and new investigations were begun in Michigan, Maryland, Missouri, Rhode Island, and Texas, and by the United States government. A committee of the National Association of Manufacturers, appointed late in 1910, continued its extensive investigations into European systems of compensation for industrial accidents. The National Civic Federation formulated and submitted for societies and legislatures a model law. Everywhere the old common law doctrines are being undermined and replaced by the more intelligent and humane plan of compensation on a definite basis. The following States enacted legislation embodying the newer ideas: California, Kansas, Massachusetts, Minnesota, New Hampshire, New Jersey, Ohio, and Washington.

NUMBER AND CAUSES OF ACCIDENTS. Considerable attention is given to the number and causes of industrial accidents, as an important phase of the conservation of the human resources of the country. The various estimates of the number of persons killed or injured annually in the United States range from 500,000 to 2,000,000. The number actually killed is placed at 35,000 to 50,000 per year.

The causes are numerous. Among them are the ignorance, carelessness, and unsuitable clothing of the worker; insufficient lighting; dirty and obstructed work places; defects of machinery and structures; absence of safeguards; fires; steam generators; electricity; railways; and elevators. Some hold that more relief will be secured through adequate supervision by mechanical engineers and the education of the workers, than through legislation. Some hold that much blame attaches to supervisors and the guardians of general facilities, who are both culpably and excusably ignorant. Mr. John Calder of the American Society of Mechanical Engineers believes the chief cause to be carelessness combined with ignorance, and some-

times thoughtlessness or horseplay on the part of the workers. He found also that the number of accidents increases as the days grow shorter in the fall and daylight lessens. When insufficiency of artificial light is combined with crowding of machines and accumulation of waste many injuries are inevitable. He advocated not only the general increase of safeguards as an integral part of the machines when constructed, but also great care in the manufacture of the machines to eliminate all projecting screws, hooks, bolts, or nuts, and to reduce the possibility of injury from belts, pulleys, shafts, spindles, and other moving parts. He believed rules far less important than their enforcement by a capable and high-minded foreman.

The statistics of German experience showed that 18.2 per cent. of accidents are attributable to the employer; 28.4 per cent. to the employee; 9.4 per cent. to employer and employee combined; and 44 per cent. to the natural risks of industry. They show that accidents per one thousand employed are 22.9 in teaming; 15.7 in quarrying; 14.6 in mining; 11.4 in building trades; 9.2 in chemical manufacturing; 6.3 in electrical manufacturing; 4.9 in the glass industry; 2.8 in printing; that the average in all industries is 9.5; but in farming 11.1.

Similarly, American statistics show that not more than 20 per cent. of accidents are due solely to the negligence of the employer and not over 35 per cent. to the negligence of the employee; so that about one-half of the cases are due to natural risks, combined with the negligence of both parties. This, of course, does not mean that the introduction of greater safeguards will not reduce the natural risks of industry.

ESTIMATED LOSS. The Employers' Liability Commission of Ohio estimated the fatal and non-fatal industrial accidents in this country at not less than 538,000 per year, and stated that in all probability the number exceeded one million. If the loss due to the non-fatal injuries of 2000 workmen be estimated at \$5,228,000, as was done by Crystal Eastman in her *Work Accidents and the Law* (page 317), then the total loss from all accidents cannot be less than several hundred million dollars, if not a billion dollars as the minimum. Professor Seager estimated the loss due to fatal and non-fatal accidents at not less than \$250,000,000 per year. Of this he considered one-half to be preventable.

COMPENSATION RECEIVED UNDER EMPLOYERS' LIABILITY. The Ohio commission found that no compensation was received in 59 per cent. of the cases of fatal accident in Cuyahoga county, and in the other 41 per cent. of the cases, the net compensation, after payment of lawyers and undertakers, was only \$600 on an average. Taking the State as a whole they found that in 59 per cent. of the cases of fatal accidents to married men no compensation was secured, and that in 73 per cent. of the fatal cases of unmarried men, or 64 per cent. of all fatal cases, no compensation was received; and that the average compensation in the other fatal cases was only \$838.61.

The Employers' Liability Commission of Illinois, after investigating more than five thousand cases, found that fifteen out of every one hundred cases of accidents, fatal and non-fatal, are taken to court; of these eight are won; leaving 92 per cent. of all cases in which no

compensation is received. In fifty-three fatal cases the commission found the average compensation to be \$1877, of which \$791 went for litigation fees.

Mr. John Mitchell, speaking before the American Academy of Political and Social Science, stated that in the eleven years 1894 to 1905 the employers' liability insurance companies of the United States received almost exactly \$100,000,000 in premiums. Of this enormous sum 43 per cent. was paid out in the settlement of claims of injured workmen. Of the amount thus paid out from one-third to two-fifths at the very least went for the payment of attorneys' fees and other court expenses. Therefore, not more than 30 per cent. of the sum paid by employers actually aided injured employees, so that \$55,000,000 were really wasted.

LIABILITY VS. COMPENSATION. The most striking tendency with reference to legal responsibility for industrial accidents in recent years has been the gradual abrogation of the common law doctrines of "assumed risk," "contributory negligence," and the "fellow-servant rule," behind which employers have freed themselves from liability, and the increasing demand for the principle of compensation to the injured workman on the basis of some definite scale.

There are in general two classes of workmen's compensation laws: One imposes the liability upon the individual employer, while the other is based on the principle of mutual insurance. Laws of the first class may be either optional or compulsory. When optional they are applicable to certain dangerous trades and contain a clause allowing the employer or the employee, as the case may be, either to accept the law or to reject it in favor of the old principle of liability. The compulsory laws are usually applicable to all trades and enforce the substitution of workmen's compensation for employers' liability without any optional choice. The laws passed in Kansas, New Hampshire, New Jersey, and California (except where the State or a city is the employer) are optional, and the cost falls on the individual employer. In Ohio and Washington a system of State insurance is provided, this being elective in Ohio, but compulsory in Washington. Massachusetts and Minnesota also adopted the insurance idea. In New Jersey the acceptance of the compensatory schedule by the employer is presumed in the absence of written statement to the contrary; in the other States the employer is required formally to accept the schedule. If the employer accepts the compensatory scheme the worker must accept it in some cases and in others is presumed to do so in the absence of written notice to the contrary. In New Jersey, Kansas, and Ohio the common law defenses of employers' liability are removed, if the employer does not accept the compensation plan; but in Kansas and New Jersey these defenses may be employed if the contributory negligence of the worker is willful. In the other States these defenses are specially restricted. In California, New Jersey, and Ohio the new laws apply to all industries; in the other States only to an enumerated list of dangerous occupations. In some States a dispute as to a claim for compensation under the act must be submitted to an administrative board or public officer with appeal to the courts; in others the dispute is taken to the court directly. The most serious objection to those laws which impose responsibility upon the individual em-

ployer is that in case of serious accident resulting in the death or injury of a number of employees the employer might be forced into bankruptcy, and the injured workmen receive almost no compensation. This objection is only partially met when the employer insures his risk with an insurance company. The great advantage of the mutual insurance plan is that the risk is widely distributed, is borne by the whole community, and there is no possibility that the injured workers will not receive the compensation provided by law.

MASSACHUSETTS PLAN. The industrial legislation of Massachusetts is watched with considerable interest because of its advanced character. In some respects Massachusetts is the oldest industrial community in this country, and its legislation often indicates the line of progress for other States. The law of 1911 providing for workmen's compensation is no exception. This law is divided into four parts. Part I extends employers' liability by removing the common law defenses of those employers who do not accept the compensation plan. If the employer does accept the plan these defenses are completely restored; indeed, the employer is allowed to shift all responsibility to the insurance association or company authorized by the law, unless serious and willful misconduct on the part of himself or one of his authorized agents can be shown. If the employer accepts the compensation scheme his employees are presumed also to accept it unless they give notice at the time of contract. Part II sets forth the scale of compensation. In case of death dependents wholly dependent receive one-half of the average wages for 300 weeks, but not less than four dollars nor more than ten dollars a week. Partial dependents receive only a part of such compensation. If there are no dependents, sickness and funeral expenses up to \$200 are provided. In case of total disability the injured receives one-half his wages, but not less than four dollars nor more than ten dollars a week for not more than 500 weeks, the total amount not to exceed \$3000. In case of partial disability the injured receives one-half the loss of wages, but not more than ten dollars a week, nor for more than 300 weeks. Special compensation is also provided for specified injuries, such as the loss of an arm. No compensation is payable in case of serious and willful misconduct of the employee himself; but in case of such misconduct on the part of employer or superintendent the compensation is doubled. Part III provides an industrial board of three members appointed by the governor, to have charge of the administration of the act. Provision is also made for local boards of arbitration to settle disputes; and also for appeal to the courts. Part IV provides for the formation of the Massachusetts Employees' Insurance Association, a mutual organization subject to the State insurance commissioner and responsible for paying compensations. This association becomes effective January 1, 1912. It will have a board of fifteen directors. As an alternative to becoming a subscriber to this association an employer may become a policyholder in a liability insurance company authorized to do business in the State. The main object of this part of the law is to replace individual responsibility for the payment of compensation by some form of mutual responsibility. The first three sections of the act become effective July 1, 1912. The act

was submitted to the Supreme Court of the State before enactment and declared to be constitutional.

OHIO PLAN. The Ohio commission, whose investigation and report is one of the most extensive and elaborate ever made, presented a plan of workmen's compensation for both fatal and non-fatal accidents in all industries. This plan was the next logical step following the Ohio legislation of 1910, which practically eliminated the common law doctrines from its employers' liability law. This plan provides for medical fees up to \$200 in many cases, and \$150 for funeral expenses in fatal cases. The compensations for death range from \$1500 to \$3400, depending on the wage. In case of total disability the compensation would equal two-thirds of wages for not more than 300 weeks; the aggregate not to exceed \$3400, nor to be less than \$1500. Permanent disablement would be compensated by a life pension equal to 60 per cent. of wages plus not more than \$150 for medical aid. In case of partial disablement the compensation would equal 60 per cent. of the impairment of wages so long as this impairment lasts; but the weekly compensation must be between \$5.00 and \$12.00 and the aggregate between \$1500 and \$3400. If the employer accepts this plan then his workers have no alternative but to accept it also. If the former, however, does not accept it he loses the protection of the common law doctrines. The fund from which compensation is to be paid is formed by contributions of both employer and workers, the former paying 90 per cent. and the latter 10 per cent., on a mutual insurance basis.

NEW YORK LAW. The constitutionality of the compulsory workman's compensation act passed by the New York legislature in 1910 was tested by a case brought by the South Buffalo Railway Company in October of that year. This law applied to about ten dangerous occupations, including railway operations. The company contended that the law denied the employer the equal protection of the laws, violated the right of trial by jury and also limited the amount which the family of a fatally injured workman might receive. The lower court held that the legislature has the power to shift responsibility for injuries arising out of the necessary risks of a business from the employee to the employer. When the case was taken to the Court of Appeals, the highest court of the State, a unanimous decision declared the law unconstitutional. The court called the law "revolutionary." It did not annul the law because it overthrew the common law doctrines, but because "in our view of the constitution of our State, the liability sought to be imposed upon the employers enumerated in the statute is the taking of property without due process of law, and the statute is, therefore, void." By "due process of law" the court meant "regular course of administration through courts of justice, citing in this connection that provision of the State constitution which reads 'trial by jury in all cases in which it has been heretofore used shall remain inviolate forever.'" It, therefore, held that to impose upon employers liability for accidents without court trial was "plainly a deprivation of liberty and property under the federal and State constitutions, unless its imposition can be justified under the police power." It then expressed its opinion that this act did not come within the police power.

This New York decision was very vigorously objected to by a considerable number of legal writers throughout the country. It was cited as another conspicuous failure of the courts to approve the social tendencies of the day. It was pointed out that the legal system should not be rendered inflexible by judicial decisions, but should within reasonable conditions be adapted to social and economic life. Moreover, it was pointed out that the decision was not in harmony with the decision of the Supreme Court of the United States upholding the laws extending the liabilities of property. The law making the shipowner liable for the care, keep, and cure, in case of accident, of a seaman was declared not to take the shipowner's property without due process of law. Similarly the bank deposit guarantee laws of Oklahoma, Kansas, and Nebraska were upheld by that court on the ground that the legislature in order to secure some public advantage may impose added responsibilities upon private property. It also stated that "in a general way the police power extends to all the great public needs. It may be put forth in aid, without sanction by usage, when held by prevailing morality or strong and preponderant opinion to be greatly and immediately necessary to the public welfare." This New York decision was expressly disapproved by the Supreme Court of the State of Washington in its decision maintaining the insurance compensation law of that State, and similarly disapproved by the Supreme Court of Kansas. The National Civic Federation began a movement for the amendment of the State constitution permitting the enactment of a compensation law. This was supported by some union labor leaders, who nevertheless favored the immediate development of the insurance idea.

THE NEW JERSEY PLAN. The New Jersey commission appointed in 1909 reported a bill to the State legislature in January. This was almost unanimously passed in April. It applies to all industries. The first section of this law entirely abrogated the "fellow-servant" and "assumption of risk" rules and provided that the doctrine of "contributory negligence" should apply only when the employer could prove that the negligence of the employee was "willful." The law defined "willful" as "(1) deliberate act or deliberate failure to act; or (2) such conduct as evidences reckless indifference to safety; or (3) intoxication." The second section provided an elective system of workmen's compensation. The law is presumed to apply to all contracts of hiring unless either party notifies the other in writing of his intention to continue under his common and statute law rights as expressed in the first section. The compensation provided for temporary disability is 50 per cent. of wages; for total and permanent disability, 50 per cent. of wages for 400 weeks; for partial and permanent disability a variety of compensations are provided for the most common forms of injury; thus, compensation of half wages for five weeks is provided for the loss of one joint of a toe and half wages for 200 weeks for the loss of an arm. In case of death the compensation is based on the number and relationship of actual dependents, the maximum being \$10 per week for 300 weeks. The law is applied to all employments, including domestic services. It was expected that the optional character of the law would forestall any attempt to find it unconstitutional on

grounds similar to those taken by the Court of Appeals in New York. The law also provided for a permanent commission to which every accident must be reported, giving name and nationality of injured and compensation given.

OTHER PLANS. The plan adopted in Washington is based on the idea of mutual insurance, the State being the custodian of the fund. To this fund the employer pays a certain per cent. of his yearly payroll according to the relative hazard of the industry. The scale of compensation for death or total disablement ranges from \$1500 to \$4000. For non-fatal accidents the compensation is equal to about 60 per cent. of the impairment of wages. The act applies to a large number of dangerous employments enumerated therein. The employee is required to waive his rights to sue for damages. The employer is required to contribute four cents for each day that the injured employee has worked to a first aid fund, which cares for the injured during the first three weeks after the accident. The Minnesota plan is similarly based on the idea of insurance. The scale of compensation ranges from \$1500 to \$3000 in case of death. For non-fatal injuries the compensation is about 50 per cent. of the impairment of wages. The Wisconsin act is similar to that enacted in 1910 in New York State. It is optional with the employee whether he should accept the compensation provided in law or sue his employer in the courts. The scale of compensation follows that of the New York law already mentioned, which provided that in case of death the compensation should be 1200 times the average daily wage, but should not exceed \$3000; and for non-fatal injury the compensation should be one-half the average weekly wages, but should not exceed \$10 per week. The California law allows a maximum for medical services of \$100. In case of fatal accident the dependents receive each week for three years an amount equal to the average weekly earnings of decedent, but not less than \$1000 nor more than \$5000. For total disability the compensation ranges from 65 per cent. to 100 per cent. of the average weekly earnings during disability; and for partial disability, 65 per cent. during such period. The Kansas law provides a compensation equal to three times the yearly earnings in case of death, provided this be between \$1200 and \$3600. For permanent disablement it provides weekly payments of 50 per cent. of wages for ten years and for partial disablement weekly payments of from 25 per cent. to 50 per cent. of wages for not more than ten years. The compensations provided in New Hampshire are 150 times the weekly wages, but not to exceed \$3000, in case of death; 50 per cent. of wages, but not over \$10 per week nor for more than 300 weeks, in case of total disablement; and 50 per cent. of loss of wages, with similar restrictions as to amount and time, in case of partial disablement.

MODEL LAWS. The model law of the National Civic Federation committee provided compensation only for workmen earning less than \$1800 a year. The compensation provided ranged from small amounts for trivial injuries to four years' wages, but not to exceed \$3000 in case of death. Settlements may be by private agreement or by arbitration. The payment may be either in lump sum or in periodical form. The law applies to many industries, giving compensation for practically all accidents. The injured workman is allowed to sue for damages where the

employer is at fault. A similar model law was prepared by a committee of the Conference Commissioners on Uniform State Laws. These two bodies planned to push their measure in numerous legislatures in 1912.

The American Mining Congress accepted the report of a committee which proposed a law imposing upon coal-mining companies the inherent and unavoidable risks of the industry. This model law provided for an annual levy of one per cent. per ton on all coal mined; this was to be paid to the State treasurer and held by him in "The Employers' Accident Indemnity Fund." From this fund the State would make payments for both fatal and non-fatal accidents in coal mines, the amount to be paid being specified in the law.

FEDERAL COMMISSION. The Federal Commission on Employers' Liability and Workmen's Compensation made public a tentative plan for legislation on October 25. This provided for compensation to be paid by interstate carriers to their employees injured during employment, except in cases of willful misconduct. The plan provided for these payments to be made by the employer through government agency rather than on a mutual insurance basis. The law was to be compulsory; and to apply to all accidents occurring during employment. The payments provided were to be periodical during a limited term of years and within minimum and maximum limits. In other respects the plan embodied the usual features of the compensation laws. Hearings on this plan were held November 6 to 10, the plan proving generally acceptable to both labor and capital. Some manufacturers, however, expressed a desire that the plan be broadened so as to include them.

A tentative bill was drafted late in December by the commission. It provided for a pension in fatal cases to be paid monthly for eight years, and to vary from 15 per cent. to 50 per cent. of wages, according to the number of dependents; for permanent total disability, a pension equal to one-half wages payable monthly during life. For permanent partial disability one-half the monthly wages were to be paid during periods set forth in the following schedule: For loss of arm, 72 months; for loss of hand, 57 months; for loss of leg, 66 months; for loss of foot, 48 months; for complete loss of hearing, 72 months; for loss of hearing in one ear, 36 months; for loss of sight of one eye, 30 months; and in other cases in similar proportion. The estimated cost to the government was \$400,000, and to railways \$15,000,000. The most frequent criticism of this bill was that the list of definite compensations was so small that the adjusters would be forced to fix compensation for a wide range of injuries, thus introducing discriminations.

PRIVATE COMPANY PLANS. Workmen's compensation schemes have voluntarily been introduced by the United States Steel Corporation and the International Harvester Company. The latter's plan is non-contributory, except that the men are required to provide a fund to pay compensation for injuries lasting less than thirty days. This is designed to increase their interest in avoiding accident. The Harvester Company's plan extends to all employees in twine, steel, and lumber mills and on railways and to their widows and children. For fatal accidents the compensation ranges from \$1500

to \$4000, being three years' wages. Special compensation is provided for loss of hand, foot, or eye. In other cases the compensation equals one-fourth of wages during the first thirty days and one-half wages beyond this and up to 104 weeks. If disablement continues longer than two years, a pension is provided. The plan of the Steel Corporation is similar. The Standard Oil Company has no general plan, but has generally avoided litigation by making satisfactory settlements.

Smaller companies and organized labor have both opposed these private compensation plans. The National Association of Manufacturers' pronounced them lavish and condemned them because non-contributory. It pointed out that a small company might be ruined by an unusual accident, if a generous scale of compensation were carried out, and that competition prevented such companies from instituting compensation schemes. While the association recognized the evils of the present system, it condemned compulsory compensation legislation as hasty and unwise; it favored contributions by both employers and workers, on an actuarial basis, to a mutual insurance company providing automatic indemnity to injured workmen.

Organized labor, on the other hand, at a meeting of representatives in New York City, expressed strong disapproval of the trusts' schemes of compensation on the ground that their object was solely to increase profits and business ability by chaining labor to the company. This would destroy the independence and mobility of labor and reduce it to a status likened in many respects to that of serfs under feudalism. The labor representatives therefore favored compulsory compensation on an insurance, but non-contributory, basis.

PROGRESS IN OTHER COUNTRIES. About thirty countries and self-governing colonies have already done away with the old form of employers' liability and introduced compensation according to fixed scales irrespective of the negligence of the worker. In foreign countries some form of insurance under the compensation principle is practically universal. Such insurance is of two kinds, compulsory and voluntary. The compulsory insurance may be in either prescribed institutions or in institutions optionally chosen. As illustrations of the former, in Norway there is one state insurance bureau for all industries, as there is also in Luxemburg; in Hungary there are two institutions, and in Austria seven employers' mutual insurance associations controlled by the state, these being grouped according to territory. In Germany there are sixty-six employers' associations, each covering the entire country for one group of industries, besides forty-eight agricultural associations, with state regulation. Compulsory insurance with choice of insurance institutions is found in Italy, and in the Netherlands where the state also competes with the private or mutual associations, and in Finland, where the state does not compete with them. Voluntary insurance with state competition is found in Sweden and France; and without state competition, in Belgium, Denmark, Great Britain, the British colonies, Russia (except for miners employed by the state), and Spain. In all of these countries the payment of the prescribed compensation is fully guaranteed. It is easily accomplished where there is compulsory insurance in pre-

scribed institutions controlled by the state. In other cases the state requires the insurance institution to give satisfactory guarantees to the government or the state bank; in still others the state itself provides a guarantee fund. Or, the state may require the insurance companies to maintain proper reserves; or it may give employees preferred claim upon assets of the employer. Moreover, in all of these countries the laws requiring the immediate report of accidents to public authority are explicit, and as a rule well enforced.

The cost abroad is found to vary much with the system. In England, where private insurance companies have occupied the field, the cost is 100 per cent. of the actual compensations paid, but in Norway, Austria, and Germany, where state insurance departments have been organized, the cost is only 16 per cent. of actual payments made. See **WORKINGMEN'S INSURANCE**.

BIBLIOGRAPHY. In addition to an abundant magazine literature on this subject there have been published the following: By Crystal Eastman, *Work Accidents and the Law* (1910); by Frankel and Dawson, *Workingmen's Insurance in Europe* (1910); *Workingmen's Insurance and Compensation Systems in Europe*, issued as the twenty-fourth annual report of the United States Commissioner of Labor; and reports by the commissions of Massachusetts, Minnesota, New Jersey, Ohio, Illinois, New York (1910), Washington, and Wisconsin.

EMPLOYERS' LIABILITY, FEDERAL COMMISSION OF. See **EMPLOYERS' LIABILITY**.

EMPLOYMENT BUREAUS. See **UNEMPLOYMENT**.

ENGLAND. See **GREAT BRITAIN**.

ENTOMOLOGY. GIPSY MOTHS, ETC. The problems of economic entomology were attacked with as much vigor in 1911 as in previous years. In the United States, the most important of these were connected with the control of the cotton boll weevil, the alfalfa weevil, the gipsy, and brown tail moths. The fight against the brown tail was reported by Marlatt to be complicated by the fact that much infested nursery stock is brought to the United States from Europe, where inspection is often not very thorough. The greatest care, therefore, should be exercised in inspecting all imported stock. While spraying and burning may help to keep these moths down, the only satisfactory solution seems to be the discovery of some natural parasites. A large number of these have been liberated in the United States, but no beneficial results have thus far been reported. As was pointed out by Wheeler, attempts of this sort are complicated by the fact that in transferring a parasitic insect to a new habitat, one can never be certain that it will not entirely change its habits.

TSETSE FLIES. E. E. Austin published a *Handbook of the Tsetse Flies*, as a revision of the species now numbering fifteen. The genus attains its maximum development in the humid region of equatorial Africa, and probably all of its members are potentially capable of carrying disease. It has been suggested that the larger mammals are the chief intermediate hosts of the trypanosomes carried by these insects, and that by exterminating these mammals, the disease could be eliminated. The general belief, however, was that the flies infect mammals other than man only under laboratory conditions, and that there is no reason to think the

proposed measures would be of any great value. The bionomics of the insect are, however, imperfectly known.

The African Entomological Research Committee, founded in 1909, is studying especially the disease-carrying insects of Africa. It was announced in 1911 that Mr. Andrew Carnegie had given £1000 a year for three years to pay the expenses of sending young men to the United States to study practical applications of entomology. The third bulletin of the Sleeping Sickness Bureau gave an account of the discovery of the intermediate stages of the *Trypanosome lewisi* of the rat, in the rat flea. The intermediate stage is passed in the epithelium of the rat's stomach.

ANTS. Emery stated that probably new colonies of the Amazon ant, *Polyergus rufescens*, are started by the fertilized female working her way into a nest of *Formica rufa*. The intruding queen if not stopped by hostile workers goes to the domicile of the reigning queen and kills her. She is then accepted as legitimate queen by the *Formica* workers, and in the second year lays eggs which develop into *Polyergus* workers.

TERMITES. Escherich published a valuable report on the termites of Ceylon. Two species may inhabit the same termitarium, though living in galleries which do not directly communicate with one another. If openings are made from one of these to the other, the animals show decidedly hostile relations. These nests may, therefore, be called compound rather than mixed. *Eutermes monoceros* march in long processions to the feeding grounds, the workers and soldiers, which are blind, finding their way by means of faecal masses deposited by the foremost workers in the procession. The licking of the queen by the workers is quite as much for food from an exudate secreted by the queen as for cleansing purposes.

EPILEPSY. Spangler, of Philadelphia, made a second report on the use of rattlesnake venom in epilepsy. He was led to try crotalin on no other grounds than the observation that a man had been cured of epilepsy by the bite of a rattlesnake. Thirty-six cases are included in the present report. In a few the disease has been apparently cured, no attacks having occurred in two years. The author is convinced that the treatment, if used with care and intelligence, modifies the severity of epileptic attacks, lengthens the intervals between seizures, and has a beneficial effect on the mental and physical condition of the patient. The form of epilepsy most favorably influenced by the venom is the so-called idiopathic or genuine epilepsy, for which there is no ascertainable cause. The patient may be subject either to major or minor attacks (*grand mal* or *petit mal*). In some cases the *grand mal* attacks are modified into *petit mal* seizures. Organic epilepsy arising from traumatic lesions of the skull or brain, or associated with focal organic diseases of the brain, such as tumors, do not respond to the crotalin treatment. Epilepsy arising from alcoholic or uremic poisoning also is not influenced. The drug is prepared by dissolving in sterile water, to which a preservative antiseptic has been added, the dried scales of venom from the *Crotalus horridus* or American rattlesnake. This solution is injected in minute but increasing doses into the muscular tissues. As the disease is controlled, the interval

between injections is lengthened from a few days to weeks or even months. In no case, however, has treatment been suspended altogether.

The field workers of the New Jersey State Village for Epileptics at Skillman canvassed 13 counties of the State and found in the families of 137 patients, 328 epileptics, an average of 2.4 for each family. The total number of defectives studied was 1253. Inheritance was found to be: Alcoholism, 69; blindness, 18; Bright's disease, 22; cancer, 27; crime, 5; deafness, 25; epilepsy, 57; feeble-mindedness, 29; insanity, 37; migraine, 12; neuroses, 30; paralysis and apoplexy, 43; suicide, 9; syphilis, 4; tuberculosis, 75. Of 30 children whose fathers and mothers were inmates of the institution, 6 were epileptic, 2 feeble-minded, 2 insane, 3 died in infancy, 3 neurotic, 1 tuberculous, 4 undetermined, and 9 normal. The charts also show that in cases in which the parents are both epileptic or feeble-minded, or one epileptic and one feeble-minded, all the children were feeble-minded or epileptic. Another study of charts of the most completely known pedigrees shows that the normal parents of epileptic offspring have come from families with defective ancestry. The report emphasizes the fact that in view of the showing that heredity plays such a large part in the production of these defectives, the State should protect itself by the passage of laws which would prevent a reproduction of other epileptics. This might be accomplished either by placing the afflicted under permanent custodial care or by sterilization of all epileptics.

EPISTEMOLOGY. See PHILOSOPHY.

ERICHSEN, MYLIUS. See POLAR RESEARCH.

ERITREA. An Italian colony on the African coast of the Red Sea. Area (estimate), 73,700 sq. miles. Population (largely nomadic), estimated at 450,000. Imports and exports (1908), 11,433,322 and 5,622,295 lire respectively. Estimated revenue for 1910-11, 8,977,750 lire (colonial revenue, 2,627,750; state subvention, 6,350,006); expenditure, 7,223,700 (military, 3,988,200; civil administration, 3,235,500). Governor in 1911, Marquis Giuseppe Salvago Raggi. The DAHLAK ARCHIPELAGO (an important pearl fishery) is attached to Eritrea.

ERSKINE, SIR JAMES ELPHINSTONE. An English admiral, died July 25, 1911. He was born in 1838, and entered the Royal Navy in 1852. In 1868 he was made a captain. From 1888 to 1891 he was senior officer on the coast of Ireland. He was promoted to be vice-admiral in 1892. In 1895 he served as commander-in-chief of the North American and West Indies Station. Two years later he received the K. C. B. and was made an admiral. He was appointed a commissioner in 1898 to inquire into the matters relating to the French treaty rights in Newfoundland. From 1901 to 1902 he was first and principal A. D. C. to King Edward. In the latter year he was made admiral of the fleet and retired.

ESKIMOS. Sir JAMES ELPHINSTONE. AN THROPOLOGY.

ESPERANTO. See LANGUAGE, INTERNATIONAL.

ETHICAL CULTURE, SOCIETIES FOR. The parent society was established in New York in 1876 by Felix Adler. Others were later established in Philadelphia, Chicago, St. Louis, Brooklyn, and elsewhere. The object of the society is to unite people of varying religious

beliefs or none, in the ordinary acceptance of the term, upon a basis of a devotion to the moral ideal. Interpreting the word "religion" to mean fervent devotion to the highest moral ends, the society is to be regarded distinctly as a religious body. But toward religion as a confession of faith in things superhuman, the attitude of the society is neutral. Neither acceptance nor denial of any theological doctrine disqualifies for membership. A recognition of the supremacy of the moral ideal and of the independence and sovereignty of the ethical factor in life is alone insisted upon as a basis of membership. The New York society is engaged in various forms of educational and philanthropic activity. Education has, from the first, been its chief care. Early in its history it established one of the first free kindergartens, and that has grown to the dimensions of the present Ethical Culture School. The membership of the New York society is about a thousand. The other societies are smaller, but are, most of them, engaged in educational and philanthropic work along the lines of the New York society. These societies are federated in the American Ethical Union, which conducts the *International Journal of Ethics* and a Summer School of Ethics, besides attending to the publication of the literature of the movement. This union is in turn related to the International Ethical Union which, at a congress at Eisenbach, Germany, in 1906, adopted as its basis, this declaration: "The general aim of the union is to assert the supreme importance of the ethical factor in all the relations of life, personal, social, national, and international, apart from all theological and metaphysical considerations." The societies for ethical culture hold regular Sunday meetings, Sunday schools, and various classes. Among the organizations of the parent society in New York are the Women's Conference, the Young Women's Union, the Hudson Guild, and the Down-Town Ethical Society.

A new meeting-house for the society, adjoining the Ethical Culture School, Central Park West and 63d Street, was dedicated in 1910, and is used for Sunday service and other meetings of the society.

The officers of the New York society in 1911 were: Felix Adler, leader; John Lovejoy Elliott, David Saville Muzey, Henry Moskowitz, and Alfred W. Martin, associate leaders. The Philadelphia Society for Ethical Culture is presided over by S. Burns Weston as leader, the St. Louis society by Percival Chubb, and the Brooklyn society by Dr. Henry Neumann.

ETHICS. See PHILOSOPHY.

ETHIOPIA. See ABYSSINIA.

ETHNOLOGY. See ANTHROPOLOGY.

EUCKEN, RUDOLF. See LITERATURE, ENGLISH AND AMERICAN, Religion.

EUGENICS. See BIOLOGY.

EUROPEAN CIRCUIT RACE. See AERONAUTICS.

EUROPEAN UNIVERSITIES. See UNIVERSITIES AND COLLEGES.

EVANGELICAL ASSOCIATION. A religious denomination, founded in 1800 by Jacob Albright as the result of evangelical work among the Pennsylvania Germans. The movement arose out of the desire of Albright to preach the Gospel among his German compatriots. This resulted in the formation of an organization which was at the time the only agent of vital

evangelism among the Germans of the United States. The denomination in general has adopted the doctrine and polity of American Methodism, but modified it in the direction of greater democracy. Although its work was originally carried on among the Germans, it is rapidly becoming predominantly English in the United States. It has spread over all the northern part of the United States and Canada, extended to the Pacific coast and southward to the Virginias and Texas. It carries on work among Italian immigrants. There were in the United States and Canada in 1911 24 annual districts, 116,507 members, 1463 ministers, and 1800 church edifices, with a valuation of \$10,000,000, and 175,000 members of the Sunday schools. The Young People's Alliance, connected with the church, has 44,000 members. The denomination contributed in 1911 \$275,000 for home and foreign missions. It has a church extension board, with a fund of \$100,000, raised in the last four years. The denomination maintains a publishing house at Cleveland, O., an orphan home at Flat Rock, O., deaconess homes and hospitals in Chicago and Philadelphia, a hospital in Bismarck, N. D., and various other institutions throughout the Middle West and elsewhere. The Northwestern College at Naperville, Ill., is its chief educational institution, while the Evangelical Theological Seminary at the same place is the principal school for the education of ministers. The chief organs of the church are the *Christliche Botschafter* and the *Evangelical Messenger*. The church also publishes a series of young people's literature and Sunday-school helps in English and German. Work is carried on in Europe, especially in Germany and Switzerland. In Europe there are 24,000 members. A publishing house and theological seminary are maintained. Recently work has been begun in Russia. The total membership of the church is 141,000 and the total number of Sunday-school scholars 187,000. The church has four bishops. Missionary work is carried on in China.

EVANS, ELIZABETH EDSON. An American author, died September 14, 1911. She was born in Newport, N. H., in 1832. Her parents removed to Ann Arbor, Mich., in 1841, and she was educated in the private schools of that city. She began to write early both prose and verse for the newspapers. She married in 1868 Edward Payson Evans. She removed to Germany with her husband in 1870 and studied in that country until the time of her death. She was the author of *The History of Religions* (1892); *The Story of Kaspar Hauser* (1892); *The Story of Louis XVII. of France* (1893); *Transplanted Manners* (1895); *Confession* (a novel, 1895); and *The Christ Myth* (1900). She also contributed to many American and English reviews, magazines, and newspapers.

EVOLUTION. See BIOLOGY.

EXHIBITIONS, ART. See PAINTING and SCULPTURE.

EXHIBITIONS. See ARCHITECTURE.

EXPLORATION. (For Arctic and Antarctic, see POLAR RESEARCH). In 1907 Captain Arnaud crossed the Sahara from Algeria and the little known region south of the northern bend of the Niger to the Gulf of Guinea. Lieut. Boyd Alexander studied Lake Chad and the rivers between the Niger and the Nile. Rich results were obtained by R. Chudeau in his journey for geological and geographical study

across the Sahara to Zinder and Timbuktu. Hanns Vischer visited the Kufra oases, the present centre of the fanatical Senoussi sect, the second explorer to gain access to this forbidden region. Maj. Powell Cotton made a very careful study of the dwarfs in the Ituri Basin, Belgian Congo. Commodore Whitehouse completed his topographical survey of the coasts of the Victoria Nyanza.

In 1908, Dr. Sven Hedin completed his exploration in western Tibet. His chief results were the survey of the main topographical features of the whole of western Tibet, the discovery of part of the Trans-Himalaya Range and the discovery and exploration of the main upper branch of the Indus River. The work engaged him for three years. Dr. M. A. Stein, on his second series of explorations in Central Asia, mapped 17,000 sq. miles of mountain land in the Chinese province of Kansu and along the northern and eastern borders of East Turkestan. He found many more ruins of ancient towns, etc., and fifty camels were required to transport his collections. The French continued their explorations in the Sahara and added several volumes to the literature of that region. The Duke of Mecklenburg arrived at the mouth of the Congo after a thorough scientific study of the great volcanic region (the Virunga district) in central Africa, between Lakes Tanganyika and Edward. The work of this party was of the highest merit. Dutch explorers were active in the southern part of Dutch New Guinea and it was proven that the Charles Louis Mountain Range extends much farther east than had been supposed, and has many snow-crowned peaks.

In 1909 it was discovered that the most extensive coal fields in Canada embrace about 20,000 sq. miles of Alberta. Mrs. Fanny Bullock Workman sent French experts to Huascarán, one of the great mountains of Peru, who proved that its north peak is 21,812 feet in height and its south peak 22,187 feet, thus disproving the assertion that Huascarán is the highest summit in South America. The detailed study and mapping of many areas in Africa was the chief work in that continent.

In 1910 a series of short railroads was completed around the rapids of the upper Congo, so that there are now 2250 miles of continuous steam transportation by river and rail between the Congo mouth and the Kalengwe Falls. Chinese trained field surveyors began a topographic survey on the lower Yangtse River, and issued a number of very creditable topographic sheets, which, however, are not yet intended for distribution. Two Russian parties began the survey of the coast line of northwestern Siberia. The Trans-Andean Railroad, between Buenos Ayres and Valparaiso was opened to trade on May 25.

NORTH AMERICA. In 1911 the United States Coast and Geodetic Survey completed a great arc of primary triangulation, more than 1200 miles in length, extending from central Texas to the Pacific coast. It connects the 98th meridian primary triangulation near Weatherford, Tex., with the Pacific coast primary triangulation near San Diego, Cal. It supplies the geographic positions of more than two hundred points, which can be used to control all future public surveys within the region traversed. The United States Geological Survey is rapidly publishing bulletins giving the results of spirit leveling in the various States. The report for the

State of Washington, for example, gives the exact elevations above mean sea level of about 1700 points in different parts of the State. The State geological surveys are increasing their activities. Thirty-six of our States recognize geological work as a necessary and proper governmental function, and have organizations to carry on such endeavor. Many of these surveys are publishing detailed reports, which give much accurate information as to the geography, geology, and resources of their States. Some of the reports, notably those published by the Wisconsin and Illinois surveys, are written largely for the general public and school instruction. The United States Geological Survey has engraved a topographic map of the new Glacier National Park. This splendid playground covers nearly a million acres in northwestern Montana, just south of the Canadian line. There are more than sixty glaciers in the park, some of them several square miles in area. New deposits of phosphate have been discovered by this survey. The area of phosphate lands now withdrawn from public sale is over 2,500,000 acres, containing many hundred million tons of phosphate rock and having a very great potential value to the farming industry.

The Canadian Department of the Interior has published the results of its investigation as to the economic value of the country to the north of the north Saskatchewan River. The large map published with Mr. Crean's report shows that the territory studied embraces most of the region between 54°-57° north latitude and 104°-113° west longitude. Mr. Crean estimates that in the eastern half of this area there are 5,000,000 acres suitable for settlement as soon as surveyed and made accessible by roads; and an area of about 12,000,000 acres of swamp or land too wet at present for cultivation may be reclaimed at little expense. Wheat may be grown in almost any part of this northern region. Of course, the likelihood of summer frosts is increased in these northern latitudes, but wheat, barley, and oats are now maturing there every season. Canada, it is believed, has a large reserve for settlement in this north country, which before many years, will have steam connections with the settled area to the south. The Canadian territory in the far West traversed by the Grand Trunk Railroad, now being built to the Pacific, has been carefully studied in relation to its economic resources. A large part of the region is said to be good wheat-growing, mixed farming land and there is excellent land for 150 miles west of Edmonton. Good farm land also prevails on both sides of the line that has been extended through the clay belt of northern Ontario.

SOUTH AMERICA. Professors Bingham and Bowman have returned from Peru, where they very successfully carried on the work of the Yale Peruvian Expedition. Among the most important results were the physiographic study of a belt of country extending from the Amazon to the Pacific, across the Andine cordillera, observations as to the effect of topography and precipitation upon the position of the snow line, soil and water supply studies in relation to vegetation, research with special reference to the distribution of people, etc.

Maj. P. H. Fawcett of the British army, who assisted in determining the disputed boundary between Bolivia and Peru, followed the little-known Heath River for 300 miles on foot and in

canoes. The topography of this region had heretofore been conjectural, the map showing mountains where rivers should be placed and *vice versa*. The river forms a part of the new boundary.

The exploration of southern Dutch Guiana, in which seven expeditions have been engaged during the last fifteen years, has now been brought to a close as the last unknown area has been eliminated from the map of the colony.

Dr. Koch-Grünberg has returned to the upper Amazon Basin to penetrate the headwaters of the Yapurá River, and to explore the region on the divide between the Orinoco and Amazon systems and their affluents. This explorer, though chiefly interested in ethnology, has done much geographic work of the first order in his field explorations. It was he who traced and mapped, several years ago, the entire headwaters of the Rio Negro.

Dr. Wilhelm Sievers believes that he has discovered the true headwaters of the Marañón, or in other words the ultimate source of the Amazon. He says the great explorer Raimondi was mistaken when he announced the Nupe as the most important of the three rivers whose united waters form the upper Marañón. He found that the Lauicochar carries much more water, extends farther south, and is the greatest of the Marañón sources. He traced this river to its ultimate springs on a snow mountain called San Lorenzo, in the Cordillera de Huayhuash, and to the lagoons Santa Ana, Caballo Cocha, Anka Cocha, and Tinka Cocha, about 15,580 feet above sea level.

AFRICA. The Benué River, the largest tributary of the Niger, is now completely explored, Captain Strimpel having surveyed the last unknown stretch of it. It has taken sixty years to reveal the whole course of the river, which is notable as being the only river in Africa that affords (with the lower Niger) a navigable waterway between central Africa and the Atlantic.

The Duke of Mecklenburg has returned to Germany after a year spent with a well-equipped party in the Lake Chad region, Bagirmi, the northern Belgian Congo, and Kamerun. The detailed results are expected to be important.

The French extended their military reconnaissances into the western Sahara, south of Morocco, in territory that was almost entirely unknown. The region lies between 29° 30' and 27° 30' N. and 5° 10' and 2° 10' W. Several springs and pasturages were discovered that will prove important to the caravan trade, and the position of the stony desert and of the two main sand deserts of the western Sahara were determined.

Map making and railroad extension are making rapid progress in nearly all the African colonies. A branch of the Cape to Cairo Railroad is now in operation, between Broken Hill in northeastern Rhodesia and Elizabethville, in the copper region of southern Katanga. Among the other important enterprises is the railroad which is now building through the great cotton area of Northern Nigeria, with a branch extending to the Bauchi Highlands in the centre of the protectorate, which have now been determined to be among the great tin mining regions of the world. The Madagascar Railroad is being extended and in 1913 it will connect Tamatave, the principal port, with Antananarivo, the capital, a city of over 100,000 inhabitants. The

completed railroad will be about 230 miles long. See article RAILWAYS, AFRICAN.

ASIA. Owing to the hostility of the Abor and other mountaineers on the Asaam-Tibet borderland, a stretch of the Tibetan Sangpo river, which is the upper course of the Bramaputra, has never been explored. It has been described as "the part of the Brahmaputra, which is still drawn by guess work on our maps." About ninety miles of the river are still unknown. In 1910, a small British party attempted to enter this unknown district, but was stopped by the Abors. A little later Mr. Noel Williamson, with about 200 natives, undertook to trace the unknown course of the river, but was attacked by the natives and massacred, with all his men. The British government has sent a punitive expedition against these mountaineers strong enough, it is believed, to reduce them to submission.

Prof. W. Volz of Breslau University gives the results of his study of the primitive Kubus, who inhabit the central forest region of southern Sumatra between 2° and 3°S. A part of these people are so completely isolated from all exterior influences that they seem to be the most primitive of human beings. The life of the Kubus is compared by the explorer to that of the gibbon, an anthropoid ape that inhabits the same region. He even appears to be destitute of rudimentary religious conceptions.

AUSTRALASIA. The Dutch and British expeditions in Dutch New Guinea have resulted in better knowledge of the southern part of that island. Dr. Lorentz, in charge of the Dutch expedition, and Captain Rawling and his party both entered the island from the south coast, Lorentz reached the Snow mountains and ascended Wilhelmina Peak and Rawling studied the coastal region as far as the mountains. These parties found that the south coast consists of a large alluvial plain cut by a great number of rivers and almost impassable for whites in the rainy season. The Papuans of the plains and those of the mountains live in the Stone Age, none of them wear clothing, but their food and habits of life are greatly affected by the difference of their geographical habitat. Captain Rawling says that the land, from the sea to the mountains, is impossible for anyone excepting a Papuan to live in. Both expeditions found pygmies.

EXPLORATION, DEEP SEA. See BIOLOGY.

EXPOSITIONS. During the year no important expositions were held in the United States. Of minor importance was the Appalachian Exposition held in Knoxville, Tenn., from September 11 to October 1, at which exhibits were shown from all the southeastern States, indicative of their resources and wealth of agriculture, minerals, and industries.

The centennial celebration of the victory of Commodore Perry on Lake Erie will be held in September, 1913. In October final details for the construction of a memorial at Put-in-Bay and the selection of an architect to design the monument were announced by the commission. The memorial will consist of a lofty monument bearing a light to aid navigation, and at its base a museum for historical relics, standing in a reservation of fourteen acres. The sum of \$800,000 is available for the memorial and \$100,000 for the grounds. The opening exercises will be held in Cleveland, O., during the week of June 22, 1913.

The selection of San Francisco, Cal., by Con-

gress, as the most desirable site for the International Exposition to be held in 1915 in commemoration of the opening of the Panama Canal, led the Panama-Pacific International Exposition to organize a directorate with Charles C. Moore as president and Rudolph J. Taussig as secretary. The fifteen million dollars which Congress required to be raised before the President invited foreign nations to participate was underwritten by banks in San Francisco. In July a decision as to the sites was announced. The industrial buildings and other temporary structures will be placed at Harbor View on the bay shore, overlooking the entrance to the harbor. All permanent buildings will be placed in Golden Gate Park, excepting an enormous convention hall to be situated at the civic centre of the city, Van Ness Avenue and Market Street. Other permanent improvements will be made along the whole water front from Cliff House, on the ocean, to the ferry building on the bay. A part of the fair will be placed in Lincoln Park which stands on the most westerly point of the city, overlooking the Golden Gate itself. The various parts of the exposition will be connected with each other by boulevards, along which a street railway will run. Advantage was taken of the presence of President Taft in San Francisco on October 14, for the breaking of ground for the exposition, and that event was celebrated with appropriate ceremonies, including a parade, participated in by military forces of the army and navy and of the State, and by a banquet in the evening.

The Panama-California Exposition will be held in San Diego, Cal., from January 1 to December 31, 1915. A corporation with U. S. Grant, Jr., as its president, and L. G. Monroe as its secretary has been organized, who have chosen D. C. Collier as director-general. A fund of over \$2,250,000 has been raised. A site of 1400 acres has been selected in Balboa Park in the centre of the city, near the business district, and where the beginning of the construction work was signaled by pressing a button in the White House by President Taft, on July 19, while at the same time Hon. John Barrett as the personal representative of Mr. Taft turned the first sod at the ground-breaking exercises in Balboa Park.

The authorities of the Philippine Islands announce that the annual Carnival Festival held each year in Manila during February will in 1912 be celebrated by an exposition at which the products, manufactures, and minerals of the islands will be shown. The government of the islands has appropriated \$25,000 for the annual exposition and for the purchase of exhibits there made, and \$5000 is allowed for the permanent staff organization. The better and more permanent exhibits will be placed in the Museum of the Philippine Islands which is now being established.

ITALY. The fiftieth anniversary of the proclamation of the kingdom of Italy was celebrated by an international exposition, of which the exhibits in industry and labor were shown in Turin, and those pertaining to history, archaeology, and art in Rome. The purposes of the Turin Exposition were to present the development of the reconstructed kingdom of Italy by exhibiting its achievements in art, science, and technology, and also to show the resources of the world by exhibiting the arts, crafts, and trades of other countries. The site chosen was

in Valentino Park, a woodland tract of 250 acres, through which the river Po flowed, and almost in the heart of the city. The river was spanned by four bridges, and motor boats furnished ready means of reaching the exhibits. There were 125 buildings covering 75 acres in which more than 15,000 exhibitors showed important products from the principal countries of Europe, nearly every one of which had special buildings. Argentina, Brazil, and the United States had separate buildings, while Chile, the Dominican Republic, Ecuador, Peru, Uruguay, and Venezuela grouped their exhibits in a building erected for Latin America. The United States building, though not so large as those of the principal European governments, was a creditable edifice erected on the river bank. It was 650 feet in length, of classic design, with sufficient ornamentation to make it impressive. See AGRICULTURE.

A broad promenade extended along the river bank in front of the buildings. The interior decorations were artistic and effective and the arrangement of the floor space was well adapted for advantageous display of exhibits. An allegorical painting by Theodore E. Butler, in the reception room, symbolized America's welcome to all comers. The Turin Exposition was inaugurated on April 30 with appropriate ceremonies, including the presence of the king and queen of Italy, as well as other members of the royal family and important dignitaries. The exposition continued open until October 31.

The site chosen for the exhibition of fine arts in Rome was on the grounds of the Villa Borghese. Twelve pavilions in which were shown the art of twelve countries, including the United States, were erected. There was also an historical section in the castle of Sant' Angelo, where life in Rome during the Middle Ages was presented, and an archaeological section was held in the recently restored Diocletian's baths where the results of the more important excavations in Rome were shown. These exhibitions were formally opened on March 27 and continued until December 1.

Congress on May 6, 1910, appropriated \$150,000 to enable the United States to participate in these expositions. Francis B. Loomis was appointed commissioner for the exhibit in Turin, and Harrison S. Morris for the exhibit in Rome.

JAPAN. Preparations for the international exposition to be held in Tokyo in 1917 have been steadily progressing. A competition has been announced for the general plan of exhibition installations, for which prizes will be given for three selected designs. The city of Tokyo has granted \$3,500,000, of which sum \$1,500,000 is for the acquisition of the site, \$1,250,000 for constructing gardens, and \$750,000 for an adequate tram, train, and cab service, for sanitary arrangements, and for the preliminary expenses for plans, guides, etc.

EYTINGE, ROSE. An American actress, died December 20, 1911. She was born in Philadelphia in 1835 and made her first appearance on the stage in a one-act play by Dion Boucicault entitled *The Old Guard*. After ten years with stock companies she appeared in 1862 with Edwin Booth in *A Fool's Revenge*. In 1868 she became leading woman in Lester Wallack's Company. After a period abroad she returned to the United States, appearing in *The Heart of Midlothian*. For several years she

was with Augustin Daly and then joined A. M. Palmer's Company at Union Square Theatre, New York city. She then played in Philadelphia and in San Francisco. After 1884 she appeared rarely on the stage. In 1870 her husband, George H. Butler, was appointed consul-general in Egypt and she lived in that country for several years. She wrote many years later *The Memories of Rose Eytinge*, which contained accounts of her Egyptian life. For a time she lived in London, and among her friends were Charles Dickens, Wilkie Collins, Gladstone, Lord Rosebery, and Charles Reade.

FAILURES IN 1911. See FINANCIAL REVIEW.

FALCONIO, DIOMEDE. An American Roman Catholic archbishop, created cardinal in November, 1911. He was born at Pescocostanzo in the Abruzzi, Italy, in 1842. He entered the Franciscan order in 1860, and on the completion of his studies in 1865 was sent as missionary to the United States. He was ordained priest in 1866 and in the same year became professor of philosophy and vice-president of St. Bonaventure's College at Allegheny, N. Y. In the year following he was appointed professor of theology and secretary of the Franciscan Province of the Immaculate Conception. He was appointed president of the college and seminary of St. Bonaventure in 1868 and in the same year became a citizen of the United States. From 1872 to 1882 he was secretary and administrator of the Cathedral of Harbor Grace, Newfoundland. He returned to Italy in 1883 and was elected Provincial of Franciscans in the Abruzzi. He became in 1888 commissary and visitor-general of the province of Naples. After holding other higher offices in the Franciscan order he was consecrated in 1892 bishop of Lacedonia and was raised in 1895 to be archbishop of Acerenza and Matera. From 1899 to 1902 he served as apostolic delegate to Canada. In the latter year he was appointed apostolic delegate to the United States. He is the author of a volume of *Pastoral Letters*. He was one of three American archbishops created cardinals at the consistory of 1911.

FALKLAND ISLANDS. A group of islands in the south Atlantic; a British crown colony. Area, 6500 sq. miles; of South Georgia, a dependency, 1000 sq. miles. Population (estimated 1910), exclusive of the South Georgia whaling settlement, 2356. Capital, Stanley, with 800 inhabitants. The chief industry is sheep farming. Acres in pasture, 2,325,154; sheep (1909), 715,651. Imports (1910), £94,294; exports, £308,930 (wool, whale oil, guano, tallow, hides, sheepskins, etc.). Tonnage entered and cleared (1910), 336,000. Revenue and expenditure (1910), £18,535 and £17,405. Governor (1911), W. L. Allardvee; colonial secretary, T. A. Vans Best (acting). Besides South Georgia, other dependencies are the South Shetlands, the South Orkneys, the Sandwich group, and Graham's Land.

FARLEY, JOHN MURPHY. An American Roman Catholic archbishop, created cardinal in November, 1911. He was born at Newton Hamilton, County Armagh, in 1842. He was educated at St. Marcattan's College, Monaghan, and at St. John's College, Fordham, N. Y. He studied law at St. Joseph's Seminary at Troy, N. Y., and spent four years in the American College at Rome. In 1870 he was ordained a

priest in Rome. For the two years following he served as assistant rector at St. Peter's Church, New Brighton, N. Y. From 1872 to 1874 he was assistant secretary to Archbishop McCloskey. In the following year he was appointed private chamberlain to Pope Leo XIII., with the title Monsignor. He became in 1891 vicar-general to the archbishop of New York. In the year following he served as domestic prelate to Pope Leo XIII. He was appointed prothonotary apostolic in 1895 and in the same year was made auxiliary bishop of New York. In December of the same year he was consecrated titular bishop of Zeugma. On the death of Archbishop Corrigan in 1902 he received the appointment of administrator of New York, and in September of the same year he became the fourth archbishop of New York. He was one of the three American archbishops who were appointed cardinals at the consistory of 1911. He is the author of *Life of Cardinal McCloskey* (1899-1900), and has contributed articles on controversial and other subjects to magazines.

FARMAN, ELBERT ELL. An American lawyer and diplomat, died December 30, 1911. He was born in New Haven, Oswego county, N. Y., in 1831, and graduated from Amherst College in 1855. He studied law and in 1858 was admitted to the bar. For several years he traveled in Europe and studied languages and international law at the universities of Berlin and Heidelberg. From 1868 to 1875 he was district-attorney of Wyoming county, N. Y. He was diplomatic agent and consul-general of the United States at Cairo, Egypt, from 1876 to 1881, and in 1880-81 was a member on the part of the United States of the international commission to revise the judicial codes of Egypt for the use of mixed tribunals. In 1883-4 he was a member of the international commission which examined the claims and determined the amounts to be paid to inhabitants of Alexandria for losses arising from the bombardment and burning of that city in 1882. He secured the obelisk known as "Cleopatra's Needle" as a gift of the khedive of Egypt to the city of New York in 1879. His large collections of ancient coins and Egyptian antiquities were given to the Metropolitan Museum of Art. For many years he delivered political addresses during presidential campaigns. In 1872 he was a delegate to the Republican national convention. He received a decoration from the khedive of Egypt. He was the author of *Along the Nile with General Grant* (1904) and *Egypt and its Betrayal* (1908).

FARM CENSUS. See AGRICULTURE.

FARM COLONIES. See PENOLOGY.

FARM IMPLEMENTS. See AGRICULTURE.

FARM PRODUCTS. See AGRICULTURE.

FARNOL, JEFFERY. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

FATIGUE. Long before the real nature of infection was known, the influence of fatigue on the course and development of infectious disease was recognized. Some of the earlier veterinarians noted that overexertion preceded glanders or anthrax in horses and cattle. According to Roger, fatigue plays an important rôle as a predisposing cause of typhoid fever. Thus military surgeons note that soldiers, while in garrison they may be free from typhoid fever, are liable to develop it after they have undergone the strain of manœuvres. Charrin and Roger twenty years ago published their

classical work on the breakdown of resistance to infection after physical exhaustion. They experimented on white rats, using the bacillus of anthrax. The experimental animals were first made to run in a squirrel's cage for several hours until thoroughly tired, and were then inoculated, control rats being injected with an equal dose. It was found that the fatigued rats succumbed to the infection earlier than the non-fatigued, and that in some cases the latter survived a dose sufficient to kill the former in less than twenty-four hours. In one experiment, five control rats injected with the virus of symptomatic anthrax survived, while all of the six fatigued rats inoculated with the same amount died, three of them in less than twenty-four hours. Recent advances in the study of immunity have illuminated the subject still more. Desandro of the University of Naples repeated the work of Charrin and Roger. He used as his subjects dogs, rabbits, and guinea pigs, with typhoid toxin for the infective material. He not only confirmed their results, but demonstrated some of the changes which take place as the result of fatigue, which seems to explain the loss of resistance to infection. The investigator tired his animals by means of faradization, carried to the point of rapid contractions, but without causing pain or extreme terror. Each series of animals experimented on consisted of four classes: Class 1, containing those which were fatigued by faradization each day for five to seven days before injection; class 2, those which were tired just prior to injection and then daily after injection; class 3, those which received the injection in a normal state and were then fatigued occasionally at intervals of several days; and class 4, those injected and left to rest—the controls. After ten days, the animals, if living, received a second dose. Desandro set out to ascertain the effect of fatigue on the duration of life, the body, weight, temperature, character, and number of leucocytes, the formation of agglutinin, opsonin, precipitin antitoxin, anti-endotoxin, and bactericidin. With regard to the last five substances, his experiments were not conclusive, but he was able to demonstrate decided changes in the mechanism of resistance as a result of over-fatigue. All the animals which were subjected to fatigue died sooner than the controlled, death coming more quickly in those which received the first injection in a state of exhaustion than in those which were exhausted only after injection. Loss of weight was greatest in those animals which were fatigued rapidly before injection. One guinea pig lost 245 grams, while the control lost only 105 grams. A dog lost 1500 grams, while the control lost only 200 grams. In all the injected animals, whether fatigued or not, injection of typhoid toxin was followed by typical changes in the number of leucocytes, namely an immediate diminution followed by an increase and then a return to the normal count. Desandro found that the protective elements of the blood were lowered more markedly in the fatigued animals than in those at rest. The leucocytes (white corpuscles) were reduced in a greater degree after injection, with only a slight rise subsequently. The results of Desandro's observation on an agglutinin formation are also very interesting. He found that the slight agglutinative power of all the serums disappeared after the first injection (negative phase). The serum of the control

animals began to show agglutinative power by the third to the fifth day, that of the fatigued animals not until the fifth to the eighth day, animals of class 1 being always the slowest to respond. All the control animals exceeded the fatigued in the amount of agglutinin formed. Desandro concludes that overfatigue greatly favors the development of infectious processes by its effect on the defensive mechanism of the body.

FAUNCE, DANIEL WORCESTER. An American Baptist clergyman and scholar, died January 3, 1911. He was born in 1829 and graduated from Amherst College in 1850. He studied at the Newton Theological Seminary, graduating in 1853. In the same year he was ordained to the Baptist ministry. He was pastor of churches in Worcester, Mass., Concord, N. H., Washington, D. C., Pawtucket, R. I., and other cities, and was a member of the Board of Managers of the American Baptist Missionary Union. He was the father of W. H. P. Faunce, president of Brown University. He was a prolific writer. Among his published works are *Words and Works of Jesus* (1873); *Words and Acts of the Apostles* (1874); *A Young Man's Difficulties with His Bible* (1877); *Hours with the Skeptic* (1889); *Advent and Ascension* (1893), and *Shall We Believe in Divine Providence?* (1900).

FAWCETT, P. H. See **EXPLORATION.**

FEDERAL COMMISSION OF EMPLOYERS' LIABILITY. See **EMPLOYERS' LIABILITY.**

FEDERAL COMMISSION ON INDUSTRIAL RELATIONS. See **TRADE UNIONS.**

FEDERAL FOOD AND DRUGS ACT. See **FOOD AND NUTRITION.**

FEDERATED MALAY STATES, THE. A British protectorate in the Malay Peninsula, composed of four states, as follows:

AREA AND POPULATION. The four states, with their area and population in 1911 are: Perak, 7900 square miles, 494,123 inhabitants; Selangor, 3200, 294,014; Negri Sembilan, 2550, 130,201; Pahang, 14,100, 117,595. Total area, 27,750 square miles; population, 1,035,933. Largest town, Kuala Lumpur (47,000 inhabitants), in Selangor. The newly ceded portion of Petani called **REMAN** or **Rahman**, formally taken over from Siam, July 16, 1909, and incorporated in the district of Upper Perak, extends from Kedah to Legeh and contains about 1000 square miles (population, 3000). In it are situated the Klian Intan mines. The whole length of the Perak River is now included in the state. Schools (1910) 356, with 21,967 pupils (327 Malay vernacular, with 16,640). Kuala Lumpur has a very complete institute for medical research.

PRODUCTION. Area alienated under permanent title, 1,492,604 acres (1,174,803 agricultural, 312,499 mining); forest reserves, 479,740. Area in 1909 under rubber, 230,069 acres; (Selangor, 100,637; Perak, 68,278; Negri Sembilan, 44,883; Pahang, 20,271); under rice, 155,205 (Pk. 75,346; Pg., 36,793; N. S., 33,954; S., 9112); coconuts, 122,291 (Pk., 63,225; S., 24,294; N. S., 19,037; Pg., 15,735); under gambier, 60,000 (S., 39,000; N. S., 21,000); under tapioca, 11,083 (N. S., 8750; Pg., 2262); under coffee, 11,270 (S., 10,645; N. S., 324); under sugar, 7126 (Pk., 7000); under pepper, 1913 (S., 1250); under various crops, 36,382.

The total revenue from all mines in 1909 was

7,694,231 S. S. dollars (1 Straits Settlements dollar=56.7758½ cents). Total output of tin (1909), 818,888 piculs (1 picul=133½ lbs.) of which 180,586 piculs were exported as block tin and 638,302 as tin ore. Perak contributed 115,376 piculs tin and 346,289 tin ore (including 5000 piculs from Reman); Selangor, 49,022 and 216,984; Negri Sembilan, 4533 and 43,537; Pahang, 11,654 and 31,490. Sterling value of total output, £6,496,509. Gold output (1909, 16,243.6 ounces (Pg., 14,887.6; Pk., 1279; N. S., 77)).

COMMERCE, FINANCE, ETC. Trade and finance statistics for three years are given below in Straits Settlements dollars.

	1908	1909	1910
Imports	51,343,592	46,194,598	53,255,151 *
Exports	66,421,878	76,273,438	102,851,990 †
Revenue	24,623,325	25,246,864	26,553,018 a
Expenditure	25,874,573	23,633,852	23,598,610 b

* Live animals, foods, drinks, and narcotics, 32,067,919 dollars; raw materials, 3,894,431; manufactured articles, 13,954,537; bullion and specie, 3,160,275.

† Tin and tin ore, 57,154,891 dollars; rubber, 38,441,610; copra, 1,194,226; sugar, 679,794; rice, 655,085; gold bullion, 649,651.

a Customs, 10,851,374 dollars; railways, 5,996,649; posts and telegraphs, 835,204; forest revenue, 500,896; licenses, etc., 3,204,848; land revenue, 1,636,152; municipal, 1,074,742.

b Personal emoluments, 5,357,965 dollars; other charges (establishment), 4,026,341; railways, 7,514,810; public works, 5,527,900.

Vessels entered (1910), exclusive of native craft, 4509, of 1,752,551 tons.

COMMUNICATIONS. Total railways open for traffic at end of 1910, 538 miles. Length of telegraph and telephone lines (end of 1910), 1556 miles; wires, 5135; post offices, 63.

GOVERNMENT. Over local affairs, the chiefs preside. In the federal council, which deals with affairs common to the states, each state is represented; the rubber and tin interests have special representation. Sir Arthur H. Young, governor of the Straits Settlements, is high commissioner. Resident-general (1911), R. G. Watson (acting). Chief secretary to the government, E. L. Brockman, Tregganu (q. v.), is reported as not having joined the federation.

FENCING. The eighteenth annual intercollegiate tournament was won by Cornell. The United States Military Academy finished second and the United States Naval Academy third. The individual championship went to D. G. Ross of Cornell, who after a tie defeated M. W. Lorimer of the United States Naval Academy in the deciding bout. In dual matches Cornell defeated Pennsylvania, Columbia, and the Naval Academy. The Military Academy defeated Pennsylvania, Yale, and Columbia. Harvard defeated Springfield Training School, Yale, Princeton, and the Military Academy. Pennsylvania defeated Columbia and Princeton. The Naval Academy defeated Yale, Pennsylvania, and Princeton.

In the national championships held by the Amateur Fencers' League, the foils and duelling swords were won by G. H. Breed of the Fencers' Club of New York, and the sabres by A. G. Anderson of the New York A. C. The New York A. C. won the duelling swords contest for the Saltus Cup, Joseph T. Shaw of the Fencers' Club of New York was the victor in the competition

with foils, sabres, and duelling swords for the Hammond medals. The Fencers' Club of New York won the Saltus medals in the junior team foils contest.

FENN, HARRY. An American artist, died April, 1911. He was born in Richmond, England, in 1838, and came to the United States in 1857. He was well known as a painter of water colors, but his most widely known work was as an illustrator, notably of the books, *Picturesque Europe*, *Picturesque America*, *Picturesque Palestine*, and *Sinai and Egypt*. He illustrated Whittier's *Snow Bound* and *Ballads of New England*, which were among the first illustrated gift books published in the United States. He was the founder of the American Water Color Society.

FERGUSON, HENRY A. American landscape painter, died March 22, 1911. He was born in Glens Falls, N. Y., and was graduated at Trinity College. Upon the completion of his college course he traveled extensively and, although he had had no formal training, painted pictures in Egypt, Italy, Mexico, and South America, as well as in the United States. He was an associate of the National Academy of Design. He devoted a considerable portion of his time to the restoration of paintings, a work in which he achieved considerable success. In addition to his landscapes, he did many architectural paintings.

FERRIS, JOHN MASON. An American Dutch Reformed clergyman, died January 30, 1911. He was born in Albany, N. Y., in 1825, and graduated from New York University in 1843. After studying theology at the New Brunswick Theological Seminary, he was ordained to the ministry in 1849. He had charge of a church in Tarrytown, N. Y., from 1851 to 1854, in Chicago from 1854 to 1862 and in Grand Rapids, Mich., from 1862 to 1865. In 1864-5 he was a professor in the Wesleyan Theological Seminary. From 1865 to 1883 he was corresponding secretary of the Board of Foreign Missions of the Dutch Reformed Church. From 1881 until 1906 he was editor of the *Christian Intelligencer*. He resigned from this position on account of ill health.

FERRITUNGSTITE. See MINERALOGY.

FERTILIZERS. The year 1911 was marked by great growth in the fertilizer industry, activity in the search for and exploitation of new sources of fertilizing materials, and progress in the economical and efficient use of fertilizers.

GROWTH OF THE FERTILIZER INDUSTRY. The rapid growth of the fertilizer industry is strikingly brought out in census figures published during the year, which show that there were 550 establishments devoted exclusively to the manufacture of fertilizers in 1909, as compared with 400 in 1904; that the capital invested was \$121,537,000 in 1909 and \$69,023,000 in 1904, an increase of 76 per cent.; and that the value of products was \$103,960,000 in 1909, as against \$56,633,000 in 1904, an increase of 84 per cent. The output of the 550 establishments was 5,240,164 tons in 1909, to which should be added 229,845 tons of complete fertilizers, 48,020 tons of ammoniated fertilizers, 10,955 tons of concentrated phosphates, 22,615 tons of superphosphates, and 64,736 tons of other fertilizers produced by 292 establishments primarily engaged in the manufacture of other products, making the total production for the year 5,616,335 tons. The fertilizer output for 1904 was 3,267,777

tons. In 1909 as in 1904, the larger part of the output consisted of complete fertilizers, of which 2,947,642 tons were produced in 1909 and 1,329,149 tons in 1904. Of superphosphates 1,223,969 tons were produced in 1909 and 766,338 tons in 1904.

There is evidence that the growth indicated by these figures was maintained in 1910 and 1911. It is estimated that \$120,000,000 are now annually paid for commercial fertilizers in the United States, of which more than 80 per cent. is spent in the South Atlantic States and about 3 per cent. west of the Mississippi River. There has been a rapid increase in the use of fertilizers in recent years, not only in the South, but in the citrus-growing regions of California. This rapid growth of the fertilizer industry has been accompanied by unusual activity during 1911 in developing new sources of fertilizing materials.

POTASH. In the case of potash this activity has doubtless been accentuated in the United States by the controversy between American purchasers and the German potash syndicate regarding the supply and price of potash. This controversy, however, appears to have been satisfactorily adjusted toward the close of the year, the reported agreement being that the independent mines with which the American low-price contracts were made are to be absorbed by the syndicate and the American purchasers are to be supplied with potash for five years on the basis of \$32.50 per ton of muriate of potash instead of twenty dollars per ton as agreed upon by the independent mines. This price is materially lower than the current syndicate prices following the passage of the German law of May, 1910. The fact that Germany, through its vast natural deposits, now maintains a strict monopoly of the potash industry, and is thus able to control the supply and fix prices, has stimulated efforts in various countries to develop other sources of supply. Natural deposits of potash salts in Austria, particularly in Galicia, are being actively exploited; borings are being made with some promise of commercial success in Holland; and search for natural deposits is being made in other parts of the world. Explorations and investigations with a view to developing a domestic supply of potash have been especially active in the United States. The United States Geological Survey and Bureau of Soils are co-operating in systematic work of this kind. Possible sources of supply which are being investigated include the rock salts and bitterns of the eastern United States; surface and underground salt deposits of the arid regions; various potash-bearing minerals, such as feldspars, glauconite, leucite, and alunite, and seaweed. Although no deposits of potash salts of commercial importance have yet been discovered, information has been obtained which seems to warrant further investigation. Deep borings with this object in view have been undertaken near Fallon, Nev., in the bed of former Lake Bonneville, where earlier geological exploration had indicated the possible occurrence of underground salt deposits. During the past year the United States Bureau of Soils surveyed about 100 sq. miles of kelp-bearing area on the Pacific coast, which, it is estimated, will supply annually without detriment to the growth enough kelp to yield one million tons of potassium chlorid, or about three times the

present importation from Germany. The kelp contains a high percentage of potash salts which are easily extracted.

The progress that has recently been made in perfecting methods of extracting potash from potash-bearing minerals encourages the hope that with cheap power some of these may be made commercially successful.

On the whole there seem to be good grounds for the optimistic opinion of Secretary Wilson that "the day is not far distant when we shall cease to import potash."

PHOSPHATES. Further explorations and examinations during 1911 of the phosphate fields of Wyoming, Utah, Idaho, and Montana, have revealed what appear to be the most extensive deposits in the world. It is estimated that the deposits examined up to the present time are capable of yielding over 2,500,000,000 long tons of seventy per cent. phosphate, with the probability that the area will be greatly extended by further exploration. Only their comparative inaccessibility and the consequent high cost of transportation stand in the way of the present development of these deposits. It would seem that the supply of phosphates is sufficient to meet future demands for an indefinite period.

NITROGEN. As regards the third essential constituent of fertilizers, namely, nitrogen, the most notable development during the year was a marked increase in the production and consumption of ammonium sulphate, especially in the United States. The estimated output of ammonium sulphate in the United States in 1910 was 116,000 long tons as against 106,500 tons in 1909. The consumption in the United States in 1910 is estimated at 187,000 tons, representing an increase of 55 per cent. in imports. Germany produced 375,000 tons of ammonium sulphate in 1910, the United Kingdom 369,000 tons. The increase in the United States was due mainly to the construction of a large number of by-products coke ovens, from which three-fourths of the American product was obtained. The putting of ammonium sulphate on the free list in the new tariff act was followed by a large increase in American imports. Over half of the ammonium sulphate consumed in the United States is used for agricultural purposes in the Southern States.

The total annual world's output of ammonium sulphate, namely, about 1,100,000 long tons, is still less than one-half that of nitrate of soda, which therefore remains the principal source of nitrogen in fertilizers. The Chilean Nitrate Propaganda reports that the production of nitrate during the year ended June 30, 1911, was 2,758,000 short tons as compared with 2,685,000 tons during the preceding year. The world's consumption of Chilean nitrate during the year ended June 30, 1911, is stated to have been 2,670,000 short tons, of which the United States used 644,000 tons. The Chilean government is reported to have under consideration the sale of a portion of the nitrate lands. This would probably result in increased output and lower prices. The search for other nitrate deposits than those of Chile was continued during 1911, especially in the United States. A number of such deposits were found, but none of these has yet proved of commercial importance. Considerable progress was made during the year in the electro-chemical preparation of nitrogen compounds from the free nitrogen of the air,

but the products of this industry are not yet a serious rival of Chilean nitrate.

The utilization of organic sources of nitrogen, such as cotton-seed meal, packing-house by-products, fish residues, and the like, has rapidly grown, and the nitrogen in them commands a higher price per pound than in the more readily available nitrate of soda. There appears to be further opportunity for profitable utilization of such by-products. A recent report of the United States Department of Commerce and Labor calls attention to such an opportunity in the saving of the enormous wastes of fish residues at salmon canning factories.

HIGH-GRADE OR LOW-GRADE FERTILIZERS. The importance of using only high-grade materials was especially emphasized by several of the agricultural experiment stations during the year. It is safe to say that the experiment stations have done no more important thing than to demonstrate clearly and to insist that it does not pay the farmer to buy and use low-grade fertilizers.

LITERATURE. Among the more important literature relating to fertilizers appearing during 1911 was a book entitled *Manufacture of Chemical Manures*, by J. Fritsch, and a preliminary report on fertilizer resources of the United States, issued as *Senate Document 190*, Sixty-second Congress, Second Session.

FESTIVALS, MUSICAL. See **MUSIC.**

FEVER, MALTA. See **MALTA FEVER.**

FEZ. See **MOROCCO, History.**

FICTION, ENGLISH AND AMERICAN. See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

FIELDS, ANNIE. See **LITERATURE, ENGLISH AND AMERICAN, Literary Biography.**

FJI ISLANDS. A British crown colony, composed of islands in the south Pacific. Total area (including 225 small islands), 7435 sq. miles. Largest islands: Viti Levu, 4112 sq. miles; Vanua Levu, 2432. Total population (1910), 137,588. Capital, Suva (1121 inhabitants), on Viti Levu. There are government and mission schools. Area (1900) under sugarcane, 51,870 acres; coconuts, 29,759; rice, 7291; bananas, 3012; corn, 1786; tea, 202. Livestock: 36,400 cattle, 5000 horses, 3000 sheep, 19,400 goats. Trade and finance are given as follows for four years:

	Imps.	Exps.	Rev.	Expend.
1907	£843,007	£ 881,364	£179,802	£156,811
1908	662,654	878,394	178,015	197,798
1909	636,250	947,136	177,909	187,684
1910	628,000	1,006,000	212,000	237,000

Tonnage entered and cleared (1910), 516,000. Public debt (1910), £104,000. Governor of Fiji and high commissioner for the western Pacific (1911), Sir Francis Henry May.

FILTRATION OF WATER. See **WATER PURIFICATION.**

FINANCIAL REVIEW. In addition to the topics discussed here the **YEAR BOOK** includes articles on **BANKS AND BANKING, NATIONAL BANKS, STATE BANKS, LOAN AND TRUST COMPANIES, SAVINGS BANKS, POSTAL SAVINGS BANKS, NATIONAL MONETARY COMMISSION, PRICES, TARIFF, TRUSTS, MONEY, INSURANCE, STANDARD OIL COMPANY, AMERICAN TOBACCO COMPANY, and UNITED STATES STEEL CORPORATION**, all of these articles contain material bearing upon various phases of the financial and industrial conditions of the year.

GENERAL BUSINESS CONDITIONS. The year 1911 was not distinguished by either business reaction or business prosperity. It was a year of notable irregularity in trade and industry; and yet, in spite of evident caution, a fair volume of business was transacted, though the amount of profits was generally a cause of disappointment.

Following the panic of 1907 there had been a very remarkable revival of industry beginning about the middle of 1908. This upward movement continued until the close of 1909 or even until the early part of 1910. The year 1910, however, was distinctly a year of reaction and retrenchment. The year 1911, therefore, opened with business men already in an uncertain frame of mind. This mental state was perpetuated by various events, especially by the trust prosecutions and proposals for tariff revision, with the result that at no time during the year was there a clear optimistic tone. Even at the very close of the year prominent business men were still undecided as to whether conditions would improve more or less rapidly, or whether they would remain about the same, or even decline. Yet the first three-quarters of the year may be distinguished from the last by greater political disturbance, a wet, cold spring and a hot, dry summer, crop scares, short-time business dealings, and hand-to-mouth buying. During the later months buying was more generous both because of exhaustion of supplies on hand and because of a more cheerful business tone. The majority opinion seemed to be that business readjustment had touched bottom and that a gradual improvement would follow. Money was fairly abundant during the entire year and American interest rates averaged low. Indeed, one of the noteworthy features of the year was the ability of America to finance her own crop movements and other business operations and even to make loans in Paris and Berlin.

The war scare over the Moroccan dispute was the cause of considerable financial disturbance in Europe and numerous labor controversies caused unusual business anxiety in Great Britain during the summer. In the United States labor disturbances were very distinctly less numerous and less threatening than in 1910; while wage changes were not considerable, there were numerous reductions in hours. The determined attitude of the government in the enforcement of the Sherman Anti-Trust law acted as a decisive check to business promotions. Indeed, this was a cause of great agitation in both financial and industrial circles. Moreover, in spite of the decisions of the Supreme Court in the Standard Oil (q. v.) and American Tobacco Company (q. v.) cases, the business world was very much in doubt as to the scope of the anti-trust law. A fictitious announcement that the steel trust was to be attacked by the government, that it would seek reorganization under government direction, that the attorney-general contemplated more than 100 suits against combinations, brought on a temporary stock market panic in September. This was quieted by statements made by Judge E. H. Gary and Mr. J. P. Morgan. By the close of the year discussion of the trust problem had cleared the atmosphere considerably, and business was less terrified by the proximity of increased governmental regulation. Moreover, the lowering of steel prices as the result of competition between

independents and the trust, together with the exhaustion of supplies in the hands of users, stimulated the placing of orders for iron and steel. Thus the unfilled orders on the books of the steel trust amounted to 5,084,761 tons on December 31; this was the greatest amount of such orders in several years, contrasting sharply with 3,611,317 tons in September, 1911, and 2,674,757 tons in December, 1910. Similarly in some other lines buyers, finding accumulated stocks exhausted, were forced into the market, with the result that at the very close of the year there were some indications of industrial betterment.

Speculation was cautious most of the year; nevertheless a good volume of new securities was floated, the markets for bonds and short-time bills were active, and stock prices generally were better January 1, 1912, than one year earlier. Bond sales on the New York Exchange were 40 per cent. greater and stock sales 22.8 per cent. less than in 1910. The records of the year disclosed few new maximum figures in production, partly because the prices of commodities and staples were very high. Thus the railway mileage construction was only 1815 miles, the lowest in any year since 1897. The number of freight cars built was only 55,931, or less than one-third the number built in 1910. Moreover, this was the smallest number built in many years and very much below the estimated number of 250,000 freight cars needed every year to maintain the existing rolling stock.

The cotton crop alone is notable for exceeding all previous crops, the estimates of the Department of Agriculture being 14,885,000 bales for 1911-12. This great crop was especially welcomed by manufacturers, since it followed two years in which the crops had been below normal and prices very high. Thus the 1910-11 crop was disposed of at the enormous value of \$820,320,000, an amount exceeding the value of the 1909-10 crop by \$132,000,000. The effect of the large 1911-12 crop was to reduce the price of cotton from 16c. at the beginning of the year to 9½c. at its close. As a result cotton planters took steps to reduce their acreage by one-fourth. The corn crop was the lowest since 1904, although the acreage was the largest ever, except in 1909-10; owing to high prices the value, which was \$1,565,000,000, was exceeded only in 1908-9. The price of corn was the highest in forty-five years, except in 1883. The wheat acreage was the largest in ten years, but the yield and the value had often been surpassed. The total value was \$542,663,000. The oats acreage was the greatest ever and the value, \$414,663,000, was also a new maximum; this value was due, however, to high prices, for the yield had been exceeded five times in the last nine years.

Building was quiet but normal, though high prices made large total expenditures. Foreign trade, especially exports, established some new high marks. There was a large exportation of cereals and meats, iron, and steel, and cotton during the early months. Imports were slightly less than in 1910. Business failures, while in greater number, were of smaller total liabilities than in 1910.

The better tone at the close of the year was accompanied by conservatism. This was in part owing to the imminence of an exciting presidential campaign. This involved also probable changes in the tariff and the trust law. High

prices were also looked upon as a continuing check upon trade.

BANK CLEARINGS. That the year 1911 was one of irregularity in business but with a total volume of business not much below normal is shown by the returns of bank clearings for principal cities. According to *Bradstreet's* the total clearings for 112 cities of the United States were \$157,916,332,000. This was a decrease of only 2.5 per cent. from the total of 1910 and of 4.5 per cent. from that of 1909. The total exceeded that of 1908 by 19 per cent., and that of 1907 by 9 per cent., but was about 1 per cent. less than that of 1906. As compared with the preceding year losses in bank clearings were confined to the first four months of the year; the clearings of the later months being generally greater than those of 1910. The losses, moreover, were confined to thirty-six of the cities, all the remainder showing an increase over the clearings of the preceding year. The following figures giving the clearings in millions of dollars by months reflect the general course of trade during the year: January, 14,292; February, 12,082; March, 13,277; April, 12,217; May, 13,331; June, 13,050; July, 12,899; August, 12,466; September, 12,372; October, 13,303; November, 13,858; December, 13,995.

Of the total clearings 60.5 per cent. were credited to New York City. This was the smallest percentage credited to that city since 1897. As compared with 1910 the New York clearings were 5 per cent. less, although they were 14 per cent. greater than in 1908 and 5.7 per cent. greater than 1909. Contrasting New York with the rest of the country shows that there was a gain outside New York of 1 per cent. over 1910 and 3 per cent. over 1909. The relatively lower position of New York was explained primarily by the small amount of stock-market operations, which in turn was due to the conservative tone of the year.

STOCKS AND BONDS. The uncertainty prevailing in the business world was reflected by the very irregular movements of prices on the stock exchanges. In general prices tended to advance during the first half of the year, but about mid-summer a general and decided slump began and this continued with added momentum until October. During November and December there was a very decided and general recovery. The slump during the summer was due very largely to the unfavorable crop reports, to the European war scare, and extensive labor disturbances abroad. This downward movement was greatly aggravated by newspaper reports that the attorney-general contemplated wholesale prosecutions against all sorts of trade combinations and agreements. It was particularly reported that suit was contemplated against the United States Steel Corporation. This was accompanied by a statement that the Steel Corporation would seek to readjust its organization to suit the demands of the Department of Justice. A denial of these rumors was made by Mr. J. P. Morgan and Judge E. H. Gary, restoring confidence. (See TRUSTS AND UNITED STATES STEEL CORPORATION.) The irregular movement is shown by the fact that there was a difference of more than thirty-nine points between the high and low prices of Union Pacific and more than thirty-two points between the high and low prices of United States Steel common. Similarly, the recovery in the later

months is shown by the fact that Union Pacific recovered eighteen points and United States Steel seventeen. Less extensive variations affected all other stocks. As a whole prices of stocks were slightly higher at the close of the year than at the beginning. According to the *Journal of Commerce and Commercial Bulletin* the total amount of new securities issued in 1911 was \$1,739,000,000, as follows: Railway issues—bonds, \$670,814,000; notes, \$326,948,000; stocks, \$101,442,000; industrial corporations—bonds, \$322,094,000; notes, \$67,590,000; stocks, \$250,597,000. The total exceeded that of 1910 by \$220,000,000, due to greater issues of railway bonds and notes, though some principal stocks showed net declines of a few points. The total transactions for the twelve months amounted to 128,515,547 shares of stock, a decrease of 22.8 per cent. as compared with 1910 and the smallest volume of transactions since 1898. On the other hand, the sales of bonds in 1911 amounted to \$889,080,000 par value, an increase of 40 per cent. over 1910, but 32 per cent. less than the record transactions of 1909.

BUILDING. According to reports to *Bradstreet's* the aggregate building expenditures in 120 cities during the year was \$824,088,000, a decrease of 2.6 per cent. from 1910 and of 7.3 per cent. from 1909. Of the aggregate building New York City was credited with 22 per cent. in 1911 as compared with 24 per cent. in 1910 and 30 per cent. in 1909. Chicago was credited with 12 per cent. or a total of \$105,269,000, this being a gain of 8 per cent. over 1910 and of 15 per cent. over 1909. Philadelphia ranked third, Los Angeles fourth, San Francisco fifth, and Boston sixth in building expenditures. Then followed in order Portland (Ore.), Detroit, St. Louis, Cleveland, Washington, Minneapolis, Kansas City, Milwaukee, Pittsburgh, Cincinnati, Newark, and Buffalo.

FAILURES. (a) *Commercial.* Failures were more numerous in 1911 than in any year since 1897, except 1908. In fact only six of the past thirty years show a greater number of failures, while only seven of the thirty show larger liabilities. The number of failures was 9.5 per cent. greater than in 1910, 7 per cent. greater than in 1909, and 23 per cent. greater than in 1907; it was, however, 9.7 per cent. less than in 1908. The total number of failures as reported to *Bradstreet's* was 12,679, with total liabilities of \$187,642,000. The liabilities were slightly less than in 1910, 36 per cent. less than in 1908, and 51 per cent. less than in 1907, but 33 per cent. greater than in 1909 and 47 per cent. greater than in 1906. The ratio of assets to liabilities in 1911 was 35.7 per cent. This was slightly more than in either of the two preceding years, but less than in 1908 or 1907; in this respect 1911 seemed to be a year of business strain. This is indicated also by the fact that the percentage of those in business failures was .77 per cent., a proportion exceeding that of any year since 1902, except 1906. The greatest number of failures and the greatest liabilities were in January and December, as is usual. August was the only month showing fewer failures than the corresponding month of 1910; and February, April, July, and December were the only months showing smaller liabilities than the same months of 1910. Failures were much more numerous in the Northwestern States than in 1910 and they were greater also in the Northeastern and the far Western than in any

of the preceding six years. The failures were, however, not localized by sections as is shown by the fact that in Massachusetts there were 15 per cent. fewer failures than in 1910, while in Connecticut there were 39 per cent. more. In New York City failures numbered 1569, with liabilities of \$30,634,000, an increase of 15 per cent. in number, but a decrease of 26 per cent. in liabilities, as compared with 1910.

(b) *Financial.* During 1911 there were 61 suspensions of banks and trust companies, as compared with 44 in 1910, 40 in 1909, and 132 in 1908. Of these, two were national banks, 33 State banks, 1 savings bank, 20 private banks, and 5 loan and trust companies. The total liabilities were \$26,192,000, a decrease of 17 per cent. from the 1910 figure and only one-third as much in 1908 and one-eighth as much as in 1907, but more than twice the amount in 1909. The failures of national banks were the fewest in more than twenty years, except 1902; the failures of State banks were more numerous than in any year since 1896, except 1908, when there were thirty-five such failures. The trust company suspensions were about the average number for the past ten years, but liabilities (\$12,373,000) were considerably above the average. This was due mainly to the failure of the Carnegie Trust Company early in the year, which accounted for about one-third of these liabilities. The total assets were \$20,459,000, of which slightly more than one-half were credited to the loan and trust company.

FOREIGN TRADE. That the total volume of business was large, in spite of the widespread feeling to the contrary, is shown by the fact that the total volume of imports and exports was the greatest in American history. The grand total, in which the returns for December are partially estimated, was \$3,625,305,000, an amount exceeding the total of 1910 by 9.8 per cent., and that of 1907, the previous maximum, by 9.4 per cent. The total imports were \$1,532,931,000, or 1.8 per cent. less than in 1910, but 3.8 per cent. larger than in 1909, and the second largest imports on record. The total exports were \$2,092,373,000, or 12 per cent. more than in 1910 and 8 per cent. more than the maximum record of 1907. Of the imports slightly more than one-half were free of duty. The export trade for December was the greatest for any single month, except December, 1910, which exceeded December, 1911, by 1.8 per cent. The excess of exports over imports was \$550,441,000, a sum exceeded only in 1908. The principal items of exports, and in parenthesis of the percentage of change from 1910, were as follows: Breadstuffs, \$122,836,878 (inc. 28.3); meats and dairy products, \$136,630,390 (inc. 26.6); animals, \$14,289,509 (inc. 57.7); cotton, \$515,930,120 (dec. 2.6); mineral oils, \$98,936,795 (inc. 11.7). Although the value of the cotton exports decreased slightly the quantity shipped increased 22 per cent. over 1910, showing the effect of a sharp decline in price.

STATISTICS. The following statistical items show at a glance some of the more important results of the year, with the percentage of change from 1910:

		Per cent.
Corn, bushels.....	2,531,488,000	12.3 dec
Corn, value.....	\$ 1,521,105,000	13.0 inc
Wheat, bushels.....	621,338,000	2.2 dec
Wheat, value.....	\$ 543,063,000	3.2 dec
Oats, bushels.....	922,298,000	21.8 dec
Oats, value.....	\$ 414,663,000	2.0 inc

Barley, bushels.....	160,240,000	7.8 dec
Barley, value.....	\$ 139,182,000	28.5 inc
Rye, bushels.....	33,119,000	5.3 dec
Rye, value.....	\$ 27,557,000	10.4 inc
Buckwheat, bushels....	17,549,000	.2 dec
Buckwheat, value.....	\$ 12,735,000	9.4 inc
Total cereals, bushels..	4,236,032,000	13.0 dec
Total cereals, value....	\$ 2,702,458,000	8.5 inc
Flaxseed, bushels.....	19,370,000	52.3 inc
Flaxseed, value.....	\$ 35,272,000	19.0 inc
Potatoes, bushels.....	292,737,000	14.3 dec
Potatoes, value.....	\$ 233,778,000	20.1 inc
Hay, tons.....	47,444,000	22.1 dec
Hay, value.....	\$ 694,570,000	7.1 dec
Tobacco, pounds.....	905,109,000	17.8 dec
Tobacco, value.....	\$ 85,210,000	16.7 dec
Rice, bushels.....	22,934,000	6.5 dec
Rice, value.....	\$ 18,274,000	9.9 inc
Cotton, bales, est.....	16,500,000	29.1 inc
Cotton, value.....	\$ 775,000,000	14.0 dec
Total value farm prod..	\$ 8,417,000,000	8.1 dec
Bank clearings, est....	\$157,600,000,000	2.7 dec
Imports, mdse., est....	1,530,000,000	2.0 dec
Exports, mdse., est....	2,067,000,000	11.0 inc
Total trade, est.....	\$ 3,597,000,000	5.0 inc
Building expenditure...	825,000,000	2.0 dec
New York stock sales...	127,000,000	22.2 dec
New York bond sales...	889,000,000	40.0 inc
Business failures.....	12,638	9.1 inc
Failure liabilities.....	182,000,000	1.0 dec
Pig-iron, tons.....	24,000,000	12.0 dec
Labor strikers.....	255,000	53.0 dec

CANADA. Industrial and commercial conditions in Canada were fairly prosperous during 1911. The northwest provinces especially enjoyed an unusual volume of business. The coal-mining industry in both the West and East had a large output; many new manufacturing plants were opened in various parts of the Dominion; immigrants added 350,000 to the population, an increase of 5 per cent. over the immigration of 1910. The value of cereal products was estimated at \$235,000,000, the value of the wheat crop being the greatest on record. Export of flour was the greatest for several years; cheese exports were somewhat less than in 1910, but prices were better. The apple crop was unusually heavy, exports being 70 per cent. greater than in 1910. The fisheries along the Atlantic coast had the largest catch and obtained the highest prices in their history. Owing to changes in the United States tariff the lumber industry in Ontario and Quebec was fairly prosperous, but in British Columbia the competition of lumber from Washington was severely felt.

The bank clearings of fourteen principal cities was \$7,194,598,000, an increase of 17.8 per cent. over 1910 and by far the largest in the history of the country. Only Halifax and St. John, N. B., showed decreases. Of the total, 32.9 per cent. was credited to Montreal; 25.7 per cent. to Toronto; 16.2 per cent. to Winnipeg; and 7.5 per cent. to Vancouver, B. C. The clearings of the last quarter were greatly in excess of those of any other quarter in Canadian history, a maximum of \$771,772,000 being reached in November.

Canada reported 1399 failures in 1911, a decrease of 4.1 per cent from 1910. The liabilities were only \$12,799,000, or more than one-fifth less than in 1910.

EUROPE. The most important features of the financial and industrial situation in Europe during 1911 were the Moroccan affair; the bad spring and very dry summer, resulting in greatly diminished crops and extraordinary prices of agricultural products; labor disturbances in international shipping, particularly in

England; and the abundance of money in the United States enabling American bankers to finance American crop movements without making demands upon Europe, and indeed to loan considerable sums in the European money markets, especially in Germany.

In ENGLAND the year opened with many prospects of being at least normally prosperous. Money was not abundant at the opening of the year, but became plentiful, the stock exchange was active, and industry generally was in normal condition. The Bank of England rate had been 4.5 per cent. at the beginning of the year, but was reduced to 4 per cent. in February, 3 per cent. in March, and 2.5 per cent. about the end of August. Thereafter the rate was raised to 3 per cent. on September 7, and a week later to 4 per cent., where it remained. Extensive and threatening labor disturbances marked the summer months. (See STRIKES AND LOCKOUTS.) The appearance of the war scare in June caused great apprehension generally, the stock market became inactive and money became scarce. Not only in England did the money rate advance, but the state banks of France, Germany, Austria, Belgium, Sweden, and Denmark raised their rates in September. One of the features of the year was the decline in the price of consols to 76.3, the lowest point in their history. This was explained by some as due to the financial policies of Mr. Lloyd-George, involving increased taxation. Others said it was due to the admission of certain colonial bonds as trustee securities. The majority opinion, however, explained the decline as due to natural causes, such as the increased cost of living and the widespread demand for money, making possible safe investments at relatively high rates of interest. There was only one shipment of gold to North America and that was in the spring. The gold exports to Egypt were small and the demands of India were met from Australia. South American shipments were not unusual. The unrest among the coal miners (see STRIKES AND LOCKOUTS and MINIMUM WAGE) caused a genuine scarcity of coal late in the year. The Admiralty make contracts for large shipments of coal in the United States. Shipbuilding was very prosperous, there being launched 1478 vessels of 2,080,000 aggregate tonnage, and 2,127,000 indicated horsepower. This was more than half of the world's total and greatly in excess of the output of 1910.

In GERMANY industrial and commercial conditions were generally satisfactory. There was little labor disturbance, but the Moroccan affair and the high prices of commodities caused considerable concern. The iron, coal, shipbuilding, shipping, and railway industries were more prosperous than in 1910. Pig iron production, for example, was 15,534,000 tons, an increase of 5 per cent. over 1910, and exceeding that of any preceding year. The output in December, moreover, exceeded that of any preceding month. In shipbuilding there were constructed 330 vessels of 401,881 tons, with 666,885 indicated horsepower. This was an increase of twenty in the number of vessels with nearly double the tonnage and horsepower as compared with 1910. Moreover, the increase in shipbuilding was far greater than in any other country except Great Britain. Railway receipts greatly increased, although this was partly due to the interference of the dry summer with water transportation. The Moroccan affair caused

money rates to advance, brought on some disturbance of the Berlin stock exchange, caused the withdrawal of an amount estimated at \$100,000,000 by French bankers, and the loaning in Germany of an amount variously estimated at from \$50,000,000 to \$125,000,000 by American bankers. This influx of American money was very notable, since German bankers have customarily made advances to America during the late summer and fall months.

In FRANCE the first half of the year was a period of unusual financial activity. During this period considerable amounts of Pacific 4 per cent. and St. Louis and San Francisco 5 per cent. bonds were sold to French investors, and at the same time the stock of various American companies, including Atchison, Topeka, and Santa Fe, the Philadelphia Company, the American Telephone and Telegraph Company, Utah Copper, United States Rubber first preferred, Virginia-Carolina Chemical, and American Smelters Securities Company preferred A, were listed on the Paris exchange. With the development of the controversy with Germany, however, money became very scarce. To meet demands the bank of France put out a greatly increased circulation, the total being 5,800,000,000 francs. French bankers also called in their credits in Germany, Russia, Austria, Belgium, and elsewhere to an amount probably exceeding \$250,000,000.

FINLAND. A grand duchy on the Gulf of Bothnia; a part of the Russian empire.

AREA AND POPULATION. Total land area, 125,784 sq. miles. Of the total area (144,255 sq. miles), 11.15 per cent. is under lakes. Population, January 1, 1910, 3,059,300. Births (1909), 95,005; deaths, 50,577; still-births, 2477; marriages, 19,418; emigrants, 19,144. Helsingfors, the capital, had (1910), 136,497 inhabitants; Åbo, 54,687; Tammerfors, 44,064; Viborg, 50,421.

EDUCATION. There were in 1909 about 1800 primary schools attended by approximately 88,000 pupils. Secondary education is provided in lyceums, realschulen, and country high schools, well attended by both sexes. There are special schools, besides the university at Helsingfors. The average standard of education is high. The Finns are Lutherans in creed.

PRODUCTION, COMMERCE, ETC. The yield from the area under cultivation in 1908 was 6,456,215 hectoliters of oats, 3,945,266 of rye, 1,808,250 of barley, 39,259 of wheat; potatoes, 5,706,877 hectoliters; flax and hemp, 123 tons. Crown forests (1909), 12,788,290 hectares; income, 9,281,782 marks; expenditure, 2,959,124 marks. Saw mills (1908), 591; employees, 23,945; production, 2,838,064 cubic meters of timber. Livestock: 28,409 horses, 1,149,349 cattle. Output (1908 of iron ore, 9393 metric tons; pig iron, 11,712; bar iron, 26,388. Manufactures of all kinds (1908), 9165; aggregate number of workers, 127,075; aggregate value of products (exclusive of flour-mills output), 480,588,667 marks.

Trade statistics for four years are shown below in thousands of marks (1 mark=19.3 cents):

	1907	1908	1909	1910
Imports	379,056	363,540	367,127	384,100
Exports	267,237	245,044	257,054	288,100

The principal articles of special trade in 1910 were as follows:

Imports	1000 mk.	Exports	1000 mk.
Cereals	81,800	Timber	155,800
Machinery	21,300	Paper, etc.	49,300
Minerals	17,200	Butter	29,400
Iron, etc.	17,200	Skins, etc.	10,300
Sugar	19,200	Fish	5,000
Coffee	17,800	Wooden goods....	5,600
Cotton	12,200	Cottons	4,200
Chem. prods.	12,100	Iron	1,700

Germany furnished imports and received exports valued at 159,700,000 and 34,400,000 marks respectively; Russia, 110,300,000 and 78,900,000; Great Britain, 45,700,000 and 85,400,000. Vessels entered (1910), 9313, of 2,611,820 tons; cleared, 9059, of 2,519,139. Merchant marine (January 1, 1911): 2851 sailing vessels, of 321,200 tons; 468 steamers, of 71,594 tons. Railways in operation (January, 1911), 3662 kilometers (largely state-owned). Post offices, 2045.

FINANCE. The unit of value is the mark, worth 19.3 cents. Finland has its own financial and customs system. Revenue and expenditure for three years are shown in the following table (in marks):

	1908	1909	1910
Revenue	160,507,038	185,053,833	152,744,059 a
Expenditure	167,993,796	177,650,169	156,046,606 b

a From revenue-yielding administrations, 62,-328,975 marks; customs, 60,770,316; licenses, 12,-832,724; posts, 6,981,848; direct taxes, 6,421,674; etc. Extraordinary, 686,277.

b Communications, 45,519,012 marks; worship and instruction, 17,427,081; civil administration, 13,037,355; military, 11,143,860; public debt, 8,-471,075; agriculture, etc., 7,042,484; commerce and industry, 6,314,130; etc. Extraordinary, 19,452,451.

The public debt stood, January 1, 1911, at 178,028,926 marks.

GOVERNMENT. The grand duke of Finland is the Czar of All the Russias, who summons and may dissolve the Diet—a unicameral body chosen by direct proportional election, both sexes being eligible to vote. This body has theoretically the power of interior legislation; but its power was radically diminished by the Imperial Legislation act of June 30, 1910. A governor-general (1911, Lieut.-Gen. F. A. Seyn) and the Russian secretary of state for Finland (1911, Lieut.-Gen. A. Langhoff)—responsible to the czar and, theoretically, to the Diet—are the heads of the executive.

HISTORY. The elections held in January, 1911, brought out a larger number of voters than in the previous year. The results showed the Social Democrats to be the dominant party, the others in their order of numerical strength being as follows: Old Finns, Young Finns, Swedes, Agrarians, and the Christian Labor party. Nineteen women were elected. On November 10, 1911, the Russian Duma passed by large majorities bills for increasing Finland's military contributions till they reached the sum of 20,000,000 marks annually, and for placing Russians on civil equality with Finns in the Grand Duchy.

FIRE INSURANCE. See **INSURANCE.**

FIRE PROTECTION. (See also the article **ARCHITECTURE.**) The committee on statistics and origin of fires of the National Board of Fire Underwriters during the year published the

results of an inquiry addressed to the chiefs of fire departments of a number of European cities in reference to fire losses in the year 1910. The information collected was along the same lines as used by the board of underwriters in gathering statistics and other information from cities in the United States, and the detailed reports were most valuable. As was generally appreciated by insurance interests and others informed, the contrast between the care, forethought, supervision, and sense of responsibility of the people of Europe in regard to losses by fire appeared in marked contrast with the lack of such qualities in the United States, which occasions an annual loss of hundreds of millions of dollars. The statistics of this report are summarized in the following table:

	Number of cities reporting loss	Population	Per capita loss
United States ..	297	29,996,723	\$2.39
England	11	2,335,847	.44
France	8	4,392,529	.92
Germany	13	5,616,822	.19
Ireland	2	657,680	.45
Norway	1	244,000	.25

AMERICAN FIRE LOSSES IN 1911. The losses by fire in the United States and Canada during the year 1911, as recorded by the *Journal of Commerce and Commercial Bulletin*, aggregated \$234,337,250, as compared with \$234,470,650 charged against 1910. The continued high loss record of the United States was beginning to attract more attention outside insurance circles, and during the year there was much more interest shown by the general public in measures looking to the reduction of the appalling fire waste. This was evidenced by many newspaper and magazine articles, and in several States by the enactment of salutary legislation.

The insurance losses in 1911 were somewhat heavier than in 1910, due to the greater proportion of insured property destroyed. The fire losses of 1910 included those occasioned by forest fires on property with little if any insurance, but in 1911 fires were much less numerous.

The fire losses in the United States and Canada during the thirty-five years ended with 1911 aggregated \$5,181,345,425, or an annual average of \$148,038,440. From the accompanying table giving the losses by years during the past thirty-five years, 1877-1911, it will be seen that there was a steady increase in the country's fire waste, and that, notwithstanding all the more recent factors for the reduction or prevention of fire losses, the losses continued abnormally heavy.

1911	\$ 234,337,250	1893	\$ 156,445,875
1910	234,470,650	1892	151,516,000
1909	203,649,200	1891	143,764,000
1908	238,562,250	1890	108,993,700
1907	215,671,250	1889	128,046,800
1906	459,710,000	1888	110,885,600
1905	175,193,800	1887	120,283,000
1904	252,554,050	1886	104,924,700
1903	156,195,700	1885	102,818,700
1902	149,260,850	1884	110,008,000
1901	164,347,450	1883	110,149,000
1900	163,362,250	1882	84,505,000
1899	136,773,200	1881	81,280,000
1898	119,650,500	1880	74,643,400
1897	110,319,650	1879	77,703,700
1896	115,655,500	1878	64,315,900
1895	129,835,700	1877	68,265,800
1894	128,246,400		

Total for 35 years.....\$5,181,345,425

A carefully compiled record, also made by the *Journal of Commerce*, summarizing the fires credited with causing a property loss of \$10,000 or over in each instance, shows that there were no less than 3410 such fires during 1911. This compares with 3225 fires in 1910 and 3270 in 1909.

FIRE PREVENTION. In 1911 considerable legislation, both State and local, was enacted to provide authority to enforce various means of fire prevention and the official inspection of fires. In Iowa a State Fire Marshal law (Chapter 128, Acts of 34th General Assembly) went into effect July 4, 1911, which conferred fire marshal powers on the chiefs of fire departments and clerks of townships, enabling them to make inspections and order changes or removals. The law also provided for instruction in the public schools on fire dangers, required fire drills at least once a month, and the maintenance of all doors and exits unlocked during school hours. In New York a State fire marshal law was approved June 28, 1911 (Chapter 451, Laws of 1911), making it the duty of the State fire marshal "to enforce all laws and ordinances of the State, and of the several counties, cities, and political sub-divisions thereof, except in cities having over 1,000,000 inhabitants, as follows: (1) The prevention of fires; (2) the storage, sale, or use of combustibles and explosives; (3) the installation and maintenance of automatic or other fire alarm systems and fire extinguishing equipment; (4) the inspection of steam boilers; (5) the construction, maintenance, and regulation of fire-escapes; (6) the means and adequacy of exit, in case of fire, from factories, asylums, hospitals, churches, schools, halls, theatres, amphitheatres, and all other places where numbers of persons work, live, or congregate from time to time for any purpose; (7) the suppression of arson and investigation of the cause, origin, and circumstances of fire."

In Ohio a State building code, adopted in 1911, requires the State fire marshal and the chiefs of all fire departments to enforce its provisions respecting fire protection. The code contains specifications as regards constructions and fire protective devices. In New York City a fire prevention bureau was established by an act (Hoey act), amending the Greater New York charter, which gives to the fire commissioner increased powers, especially with regard to fire alarms, fire extinguishing and fire-escape equipment of a building, and makes it possible for him to prohibit and prevent the occupancy or use of a building of public access thereto, until orders issued by the fire department have been complied with. The tendency throughout the various cities of the United States was to increase the power of local officials, and to demand that life and property, especially in the case of factories employing many operatives, be surrounded with greater safeguards, and it would seem as if there were increased recognition of the danger of present conditions.

HIGH PRESSURE SYSTEMS. During the year the Philadelphia high pressure system was extended by putting into service the Fairhill high pressure fire service station located at North 7th Street and Lehigh Avenue. It is provided with ten gas engines, driving triplex double-acting piston pumps of a capacity of 1250 gallons per minute each, and one small engine and pump

of 350 gallons per minute, making a total of 12,850 gallons per minute, or approximately 18,000,000 gallons per 24 hours at a pressure of 300 pounds to the square inch. Ordinary illuminating gas is used for the engines, while the pumps are fed from a basis of 5000-gallons capacity to which two independent supply systems are connected. The area protected by this station is bounded by Race Street on the south and Allegheny Avenue on the north, and approximately from the Delaware River to Broad Street. It is gridironed with a system of mains having nominal diameters of from 20 to 8 inches.

A new high pressure water system at Jacksonville, Fla., was completed and tested in March, 1911. It consists of an electrically operated pumping station located on the St. John's River and supplied with current from the municipal water and electric light and power plant. There are two 10-inch, 4-stage, centrifugal pumps, each directly connected to a 375-horsepower, 3-phase, 2200-volt motor. The capacity of each pump is 2500 gallons per minute against 175 pounds discharge pressure at the pump. The distribution system includes about $4\frac{1}{4}$ miles of mains, consisting of 838 feet of 20-inch, 3640 feet of 18-inch, 11,270 feet of 12-inch, and 6940 feet of 8-inch pipe. There are 90 hydrants in service, each with one 3-inch and two $2\frac{1}{2}$ -inch hose outlets, while valves are so arranged that in case of a break only a single line of pipe two blocks in length need be shut off. Jacksonville was visited by a severe fire in 1907, and the new system, so far as completed in 1911, provided protection for the mercantile and warehouse districts, with provision for later extensions.

In New York City the high pressure systems of Manhattan and Brooklyn were extended during the year, and further extensions were in progress, both systems having worked most successfully; and in Manhattan it was recommended that the entire city below Fifty-ninth Street should be thus protected. In Brooklyn the greater part of the mercantile section and water front was provided with the high pressure mains and hydrants.

MOTOR APPARATUS. During the year considerable progress was made with the motorization of the various fire departments both in Europe and in the United States. In Germany this was well under way, and the fire departments of several of the larger cities have been thoroughly reorganized on this basis with improved apparatus, which was showing great efficiency. In London and other English cities, as well as in Dublin, a beginning was being made, and it was universally recognized that in the very near future all fire apparatus must be motor driven.

In the United States, where conditions require the use of heavier pumping units than in Europe, the larger cities were hesitating about supplanting steam fire engines with gasoline motor engines until the same reliability and capacity in pumping could be secured. In New York, Bridgeport, and Birmingham steam fire engines, provided with automobile propelling engines, were in use, and in several fire departments various forms of tractors were supplied for engines, ladder trucks, and water towers. A notably efficient type of the latter on the couple-gear principle was added to the New York fire department, and proved so success-

ful as to lead to the ordering of two other tractors of the same type, to handle the heavy water towers. The New York department also received during the year a heavy gasoline motor pumping engine, which was placed in service for observation and test. It was represented as equivalent to a second-sized engine, and was the first gasoline pumping engine to meet the requirements of the New York fire department. Throughout the country various smaller pumping engines, combination cars, and other machinery were installed and proved very successful. The high speed of the combination pumping engines enabled them to reach a fire at an early stage and extinguish it before it had developed unduly. Accordingly, it was the universal opinion that for towns and small cities motor apparatus is both efficient and economical, and a census made during the year by the *Municipal Journal* showed that there were used in the departments of the United States between 400 and 500 pieces of motor apparatus. The cities reporting their fire department statistics to this particular inquiry showed an aggregate of 58 pumping engines, 15 plain hose wagons, 217 combination wagons, 24 chemical engines, 8 ladder trucks, and 92 automobiles for the use of chiefs. Other classes of apparatus figuring in the same statistics aggregated more than 8000 for 692 cities, so that the opportunity for motorization at the end of the year was most extensive.

FIRE PROTECTION. Fire in a waist factory in the "Triangle" building in New York in April, 1911, in which 147 operatives lost their lives, was responsible for calling attention to the poor condition of many buildings housing a large number of operatives. Some of these buildings structurally were termed "fire-proof," but they were utterly devoid of necessary fire protective devices and means of egress even under favorable conditions, not to mention panics into which ignorant workers could easily be thrown at an outbreak of fire. This particular fire was caused in all probability by a lighted cigarette or match being deposited in inflammable waste, and the spread of the flames through the workroom was practically instantaneous. The loss of life was occasioned both by the flames and by the operatives, cut off from stairways and fire-escapes, jumping from the windows. The disaster aroused particular attention, as the building was typical as regards general conditions of thousands in New York and other cities, and in many respects far superior; therefore it was felt that active means should be taken to prevent the repetition of such a calamity. Investigations that were held showed the divided responsibility of the various State and city departments charged with the inspection of factories and other buildings. The proprietors of the Triangle Waist Company, in whose lofts the fire occurred, were indicted and held for trial, but were acquitted. In addition to arousing public sentiment, the chief gain was the passage of a bill giving increased powers to the fire commissioner, discussed elsewhere.

The large fires during the year just closed included no less than thirty-six fires where there was a property damage of half a million dollars or over. These large fires are given below:

Location and description.	Estimated loss
Little Rock, Ark., business block.....	\$1,000,000
Minneapolis, Minn., electric power plant.....	720,000
Jefferson City, Mo., State House building.....	1,000,000
Point Richmond, Cal., sulphuric acid plant.....	500,000
Chicago, Ill., grain elevator.....	500,000
Donaldsonville, La., business section of town.....	750,000
White Plains, N. Y., hotel, apartment house and stores.....	500,000
Kokomo, Ind., automobile factory.....	750,000
Minneapolis, Minn., business block.....	1,178,000
Chicago, Ill., cold storage warehouse.....	1,100,000
Benton, Pa., whiskey storehouse.....	1,000,000
Fayette, Ala., court house and stores..	500,000
Eros, La., lumber plant.....	500,000
Albany, N. Y., State Capitol building....	5,500,000
Apple River Falls, Wis., electric power plant.....	500,000
Bangor, Me., conflagration.....	3,500,000
Coney Island, N. Y., amusement parks..	2,225,000
Dubuque, Iowa, lumber yards.....	500,000
St. Louis, Mo., sash and door works and other.....	700,000
Medford, Okla., business portion of town	500,000
Chicago, Ill., stables and stock yards....	500,000
Waters, Mich., lumber plants & timber..	1,125,000
Cochran, Ont., entire town.....	500,000
Porcupine District, Ont., mining property, lumber mills, etc.....	3,500,000
Brooklyn, N. Y., furniture store & other	550,000
Clayton, N. Y., summer hotel.....	500,000
Elmhurst, Wis., saw mill and general...	700,000
Nelson, B. C., smelter plant.....	750,000
London, Ont., business buildings.....	870,000
Ogden, Utah, business buildings.....	750,000
Owen Sound, Ont., grain elevator.....	1,000,000
Moosejaw, Sask., flour mills and other..	500,000
Shenandoah, Pa., colliery.....	700,000
Brooklyn, N. Y., printing and book plant and other.....	500,000
Washington Court House, Ohio, several business houses.....	1,250,000

FISH AND FISHERIES. The report of the United States commissioner of fisheries showed that for the fiscal year ending June 30, 1911, there were distributed by the Bureau of Fisheries 42 species of fish, with a total of 473,535,461 eggs, 2,559,327,615 fry, and 36,094,503 fingerlings, yearlings, and adults. In addition 162,505,000 young lobsters were distributed. The greatest numbers of fish were whitefish, blueback salmon, pike, perch, yellow perch, white perch, cod, and flatfish. Shipments of chinook, silver, blueback, and landlocked salmon, and of lake trout were made to Argentina, of black spotted trout to France, rainbow and brook trout to Japan, and carp to Mexico. The report of the commissioner as to the value of the United States fisheries was not available at the time of writing this summary.

The act of April 31, 1910, abrogated the leasing system for the seal fisheries on the Pribilof Islands, and the control of the sea fisheries was put directly under the charge of the commissioner of fisheries. A bulletin prepared by W. L. Lembky, assistant in charge, summarized the work accomplished in organization. This report showed that 12,922 skins were sold in London in November, 1910. Professor Heath, of Stanford University, who was appointed naturalist in charge of special investigations, published his results as a separate document of the Bureau of Fisheries. He reported no alarming decrease in the number of males, but thought the females were being killed off too rapidly, probably as a result of pelagic fishing. This pelagic fishing, chiefly by the Japanese, is a

serious hindrance to any increase in the size of the herd.

Whaling has been very active during the past two years, especially in southern waters, where the industry is reported to be of more importance than it was forty years ago in the north. From the island of South Georgia 106,800 barrels of oil were brought to market in 1910. Most of the whales captured are of the humpback variety.

FISHER, WALTER LOWRIE. An American lawyer and publicist, appointed March 7, 1911, secretary of the interior, to succeed Mr. Ballinger, who had resigned. He was born in Wheeling, Va. (now West Virginia), in 1862. He was a student at Marietta College, Ohio, and Hanover College, Indiana, from 1878 to 1883, graduating from the latter institution, of which his father was president, in 1883. He studied law and was admitted to the bar in 1888. He engaged in practice in Chicago, becoming a member of the firm of Matz, Fisher and Boyden. In a short time he became known not only as a lawyer of ability, but as a forceful leader in behalf of popular and efficient government. In 1901 he became secretary of the Municipal Voters' League of Chicago, a strong organization formed to bring about reforms in the city government. He was chosen president of the league in 1906. In this work he did notable service. He early became interested in the problem of conservation and when in 1909 the National Conservation Association was formed he, together with Mr. Gifford Pinchot, drew up its declaration of principles. He was chosen vice-president of the association. Experience in practical questions relating to his office was gained in the conduct of cases before the United States Commerce Commission. His ability was recognized by President Taft in 1910 by his appointment as a member of the committee to investigate railway securities. He acted as counsel for the Merriam Commission in investigating corruption in Chicago. He was employed by the Illinois Central Railway in conducting cases of graft on the part of several of its employees.

FISK UNIVERSITY. An institution for the higher education of negroes, at Nashville, Tenn., founded in 1866. The students enrolled in the various departments of the university for the year 1910-11 numbered 538. The faculty numbered 38. Mr. George E. Haynes was appointed head of the department of sociology, created in 1910 for the upper class students. Mr. Haynes is director for the New York committee on urban conditions among negroes. This department is doing strong work in the university in the city of Nashville and in connection with the New York committee. The university received several small benefactions during the year. The amount of the productive funds is \$52,515, and the income about \$62,000. The library contains about 90 0 volumes. The president is George A. Gates, D. D.

FITZGERALD, OSCAR PENN. An American bishop of the Methodist Episcopal Church, South, died August 5, 1911. He was born in North Carolina in 1829, and was educated in the public schools of that State. In 1853 he entered the ministry of the Methodist Episcopal Church, South. Two years later he removed to California and became editor of the *Pacific Methodist* and *Christian Spectator*. From 1867 to 1871 he was superintendent of public instruc-

tion in California. He became in 1878 editor of the Nashville *Christian Advocate*. He was elected bishop in 1890. He was the author of *California Sketches*; *Christian Growth*; *Glimpses of the Truth*; *Eminent Methodists*; *The Epworth Book*; *Judge Longstreet*; *Sunset Views* (1900); and *Upper Room Meditations* (1902).

FLAX. Data on the world's flax crop in 1911 are not available, but the normal annual production is estimated at a little more than 100,000,000 bushels of seed and from 1½ to 2 billion pounds of fibre. Russia is the leading fibre-growing country in seed production. Dry weather in Europe and North America reduced the crop to below normal in many regions. The crop in the United States was much better than the year before, but, being far below normal, was still insufficient to supply the demand. The production of flaxseed amounted to 19,370,000 bushels in 1911 as compared with 12,718,000 bushels in 1910. Based on the farm value on December 1, 1911, which was \$1.82 per bushel, the crop represented a value of \$35,272,000, which was exceeded only in 1909. The area in flax in 1911 was 2,757,000 acres, the highest since 1907. The average yield per acre was seven bushels as compared with 5.2 bushels the year before. The leading flaxseed producing States and their yields were as follows: North Dakota, 9,120,000 bushels; Montana, 3,272,000 bushels; South Dakota, 3,217,000 bushels, and Minnesota, 3,200,000 bushels. The highest average yield, twelve bushels per acre, was secured in Wisconsin.

The flax industry of Ireland and the causes which contributed to its decline were recently investigated by the Department of Agriculture and Technical Instruction. A survey of the industry showed that in 1910 the area under flax was 45,974 acres, and the value of the crop over \$2,500,000. The area cultivated reached its height in 1865—301,693 acres—since which time it steadily decreased until in 1900, when it was only 46,939 acres. The speculative character of the crop due to the uncertainty of prices and yield is believed to be the main cause of the decline.

FLEMING, WILLIAMINA PATON. An American astronomer, died May 21, 1911. She was born in Dundee, Scotland, in 1867, and educated in the country. She taught at Dundee from 1871 to 1876. In 1879 she became assistant at the Harvard College Observatory. In 1898 she was appointed curator of astronomical photographs. Her method of handling these photographs gained for her considerable reputation. In her charge was the Astrophotographic Building at Harvard College. She was known also as a discoverer of new stars, variables, etc. She discovered the spectrum of a meteor which appeared on a plate exposed at Arequipa on June 18, 1897. She found a second similar spectrum in 1902. She was an honorary member of the Royal Astronomical Society in London and an honorary associate in astronomy at Wellesley College.

FLIES. See INSECTS AND THE PROPAGATION OF DISEASE.

FLORIDA. POPULATION. The Thirteenth Census, taken in 1910, showed a population of 752,619 as compared with 528,542 in 1900, an increase of 42.4 per cent. in the decade. The principal cities in the State, with their populations in 1910 and 1900, are as follows (the figures in

parenthesis are for 1900): Jacksonville, 57,699 (23,429); Tampa, 37,782 (15,839); Pensacola, 22,982 (17,747); Key West, 19,945 (17,114); Miami, 5471 (1681); St. Augustine, 5494 (4272); Tallahassee, 5018 (2981). The figures show a remarkable gain in population in most of the cities of the State in the decade.

AGRICULTURE. The Thirteenth Census included statistics of agriculture in the State, bearing date of April 15, 1910. At that date the farms in the State numbered 50,016, compared with 40,814 in 1900. The land in farms was 5,253,538 acres, compared with 4,363,891 acres in 1900. The improved land in farms was 1,805,408, compared with 1,551,653 in 1900. The average acres per farm was 105, compared with 106.9 in 1900. The value of farm property in the State, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$143,183,183, compared with \$53,929,064 in 1900. The average value of all property per farm was \$2683, compared with \$1321 in 1900. The average value of all land per acre was \$17.84, compared with \$7.06 in 1900. Of the total number of farms in the State, 36,674 were operated by owners and managers and 13,342 by tenants; of the former, those free from mortgage numbered 29,614 and those under mortgage 5160. The native white farmers numbered 34,080; foreign-born white 1215, and negro and other non-white 14,721. Of the non-white farmers 16 were Japanese, 5 Chinese, and 2 Indians. All the rest were negroes. The domestic animals, poultry, and bees in the State in 1910 were valued at \$20,591,187, compared with \$11,106,016 in 1900. The cattle numbered 845,188, valued at \$9,262,262; horses and colts, 45,640, valued at \$4,854,699; mules, 23,333, valued at \$3,545,821; swine, 810,069, valued at \$1,848,731; sheep and lambs, 113,701, valued at \$256,166. The poultry of all kinds numbered 1,326,271, valued at \$673,814. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

		Acreage	Prod., bu.	Value
Corn	1911	636,000	9,286,000	\$7,429,000
	1910	630,000	8,190,000	6,962,000
Oats	1911	43,000	580,000	435,000
	1910	42,000	680,000	432,000
Rice	1911	700	18,000	14,000
	1910	900	19,000	14,000
Potatoes	1911	10,000	900,000	1,805,000
	1910	10,000	900,000	900,000
Hay	1911	18,000	a 23,000	426,000
	1910	19,000	25,000	425,000
Tobacco	1911	2,600	b 2,444,000	684,320
	1910	3,500	2,380,000	547,400
Cotton	1911		c 73,000	

a Tons. b Pounds. c Bales.

MINERAL PRODUCTION. The State is not important as a producer of minerals. The chief product is phosphate, which was produced in 1910 to the value of \$8,647,774, compared with a value of \$8,541,301 for the product in 1909. Other minerals produced are clay products, sand-lime brick, lime, and fuller's earth. The total value of the minerals produced in 1910 was \$9,284,705, compared with a value of \$9,239,491 in 1909.

EDUCATION. The latest statistics available for educational matters in the State are for 1910. On that date the school population of the State was 148,089, of whom 92,834 were white and 86,187 colored. The total enrollment in the

schools of the State in the school year 1909-10 was 148,089, of whom 92,834 were white and 55,255 colored. A strong effort has been made in recent years to improve the condition of rural schools in the State. Instruction in agriculture has been introduced and this has received the coöperation of the University of Florida. The average salary of male white teachers in the State was \$68.13 monthly; female white teachers, \$55.80; for colored teachers, \$33.68 monthly, and female, \$30.18 monthly.

POLITICS AND GOVERNMENT. The State legislature met in 1911 and passed several important measures which are noted in the paragraph *Legislation*, below. The expiration of the term of Senator Taliaferro made it necessary for his successor to be chosen. This was the second primary election for senator to succeed Senator Taliaferro. A primary election was held on May 9, 1910, in which no candidate received a majority, and under the law of the State a second primary was necessary. This was held on June 7, 1910, and resulted in the defeat of Senator Taliaferro by N. P. Broward, former governor of the State. Mr. Broward died, however, before he could take his place in the Senate. On this account it was necessary to hold another primary election for Senator, and this took place on January 10, 1911. The candidates were W. A. Blount, John N. C. Stockton, and Nathan P. Bryan. Senator Taliaferro withdrew as candidate for reelection. This election, too, failed because no candidate received the necessary majority of votes, and another was held on January 31. This resulted in the election of Mr. Bryan. This election constituted the sixth primary contest for the election of United States senator within two years. On April 17, the income tax amendment to the constitution was ratified by the lower house. It failed of passage, however, in the Senate.

The long-continued efforts of the government to break up the system of so-called peonage in the South were substantially aided by the refusal of President Taft in January to commute the sentence of imprisonment given by the State Court to W. S. Harlan, manager of a large lumber company operating in Florida and Alabama. The case involved the use of force in preventing the desertion of foreign born laborers brought to Savannah from New York and from Savannah to the lumber camps of which Harlan was manager. He was convicted of violation of the peonage law and was sentenced to pay a fine of \$5000 and to be imprisoned for eighteen months. Mr. Harlan is a man of wealth and influence and efforts were made to have the prison sentence commuted. The President in refusing this, said, "The testimony was specific and detailed in cases of the attempted escape of such laborers (of foreigners being taken South from New York who do not speak our language nor understand what was being done to them) showing their pursuit, capture, and terrorism by display of revolvers, and in one or more instances of actual whipping." The President said further, "When a man of high business standing and large enterprises is convicted of the offense, the punishment ought to be such as to deter others from the practice. Fines are not effective against men of wealth. Imprisonment is necessary. I am well aware of the grievous character of confinement in jail to a man of Mr. Harlan's standing, and I should

be glad to yield to the appeals of his many friends, but I cannot do so. I believe him to be guilty of the charge of which he has been convicted. . . . To relieve such a one from the penalty of imprisonment when properly convicted and sentenced would be to break down the authority of the law with those of power and influence and would tempt on their part further breaches. What is worse, it would give real ground for the contention so often heard that it is only the poor criminal who is punished."

OTHER EVENTS. On January 22 a fire in the city of Jacksonville did damage to the amount of \$100,000.

LEGISLATION. The important acts passed at the legislative session of 1911 included the following: An important bill recommended by the American Bar Association providing that no verdict shall be set aside or new trial granted or judgment reversed, unless it shall affirmatively appear from the record that injustice has been done by the irregularity which was made the basis of the motion or assignment of error. The number of Supreme Court justices of the State was reduced from six to five, and a resolution was passed authorizing the appointment of a commission of three to investigate the pleading and practice of the State, and make recommendation to the next legislature for a simplified procedure.

STATE GOVERNMENT, 1911: Governor Albert W. Gilchrist; Secretary of State, H. C. Crawford; Treasurer, W. V. Knott; Comptroller, A. C. Croom; Attorney-General, Park M. Trammell; Auditor, Ernest Amos; Adjutant-General, J. C. R. Foster; Superintendent of Public Instruction, W. M. Holloway; Commissioner of Agriculture, B. E. McLin—all Democrats.

JUDICIARY: Supreme Court: Chief Justice, J. B. Whitfield; Justices, W. A. Hocker, R. F. Taylor, T. M. Shackelford, Charles B. Parkhill, and R. S. Cockrell; Clerk, Milton H. Mabry—all Democrats.

STATE LEGISLATURE, 1911: The legislature is: Senate, Democrats, 32; House, Democrats, 70.

The representations in Congress will be found in the article UNITED STATES, section *Congress*.

FLOUR. See FOOD AND NUTRITION.

FOGAZZARO, ANTONIO. An Italian novelist, poet, and publicist, died March 7, 1911. He was born at Vicenza in 1842. In his early youth he came under the influence of Giacomo Zanella, a priest who endeavored on orthodox lines to reconcile science with religion and liberalism in political matters with subordination to the church. Fogazzaro attended the university at Turin, where he studied law. Here he gave a great many evidences of his great versatility. His first literary efforts, at the age of twenty, were in verse. A poem, *Miranda*, was published in 1874, and this was followed in 1876 by a collection of lyrics entitled *Valsolda*. His appreciation as a poet is perhaps greater in foreign countries than in his own, where the abruptness of his language and his comparative lack of harmony have been severely criticised. Although his chief fame rests upon his novels, he was perhaps more successful from an artistic point of view in his short stories. The first of his published novels was *Malombra*, published in 1881, the writing of which occupied him for six years. It was written at a period when he was engaged in the study of occultism and the book

reflects these studies. *Daniele Cortis*, which appeared in 1885, is considered Fogazzaro's best work. It has been described as "a handbook for idealists." He next began the writing of a trilogy, which includes *Piccolo Mondo Antico*, *Piccolo Mondo Moderno*, and *Il Santo*. The publication of the last in 1906 brought Fogazzaro into direct conflict with the Roman Catholic Church. Although he was a devout Catholic, and regular in the practice and profession of his religion, he had always been a member of the old Liberal party, which held the doctrines of Catholicism less rigidly and took a more comprehensive and less exclusive view of its faith than was strictly consistent with the teachings of the church. There is little doubt that in writing *Il Santo* Fogazzaro intended to further the cause of Modernism as it was understood by him. The high authorities of the church declared the book objectionable and it was condemned by the Holy Office and placed on the Index. Fogazzaro made submission in due form and the matter, so far as he was personally concerned, was dropped. He was not called upon to make any retraction, as indeed no specific retraction could have been suggested. In his next book, *Leila*, published in 1910, however, there is, if not a retraction of the ideals put forth in *Il Santo*, at least an attempt to modify them. Later developments in the Modernist movement showed its adherents in actual open hostility to the authority of the church. This was a position which Fogazzaro had not desired to share or defend. Without condemning his *Il Santo*, he let it be understood in *Leila* that his teachings may have been erroneous. He was a senator and had many academic and other honors. He was perhaps the most widely known of contemporary Italian writers. In addition to the works already mentioned, his best known productions are as follows: *Un Pensiero di Ermete Torranza* (1882); *Il Fiasco del Maestro Chicco* (1885); *Fedele* (1887); *Il Mistero del Poeta* (1888); *Eva* (1892); and *Nadejde*, a play (1903).

FOLLETT, MARTIN DEWEY. An American jurist and criminologist, died August 22, 1911. He was born at Enosburg, Vt., in 1826 and graduated from Marietta College in 1853. He studied law and was admitted to the bar in 1858. In 1883 he was elected judge of the Supreme Court of Ohio. In 1864 he was a delegate to the Democratic national convention and was Democratic nominee for Congress in 1866 and 1868. He was a student of criminology and in 1900 was a delegate to the International Prison Congress at Brussels. He was a member of many philanthropic and charitable societies. He wrote many reports and addresses on charities, prison reform, etc.

FOOD AND NUTRITION. FOOD INSPECTION. The federal Food and Drugs act of 1906 continued in 1911 to receive aggressive enforcement. A total of 1162 violations of the law were reported for prosecution, a large number than in any previous year, and constituting approximately 40 per cent. of the number for the entire five years during which the act has been in effect. Of 683 cases brought to trial, 336 criminal cases resulted in convictions and the imposition of \$16,000 in fines in addition to costs, and but eleven resulted adversely to the government. Decrees of condemnation and forfeiture were also entered in 275 shipments of

adulterated and misbranded foods and drugs, and large quantities of filthy or decomposed tomato ketchup and other tomato products, frozen and desiccated eggs, and olives were destroyed.

Much attention was also devoted to the inspection of proprietary drugs. An important interpretation of the law was rendered by the Supreme Court with reference to alleged "cancer cures," in which the court held that the law did not extend to the question as to whether a product is effective or worthless to accomplish the properties claimed for it on the label. Following this decision, President Taft addressed a special message to Congress urging the immediate necessity for remedial legislation. Cooperation was, however, still continued with the Post Office Department in the investigation of so-called "cures" for various diseases, and orders resulted which practically suppressed the mail-order cancer-cure business in this country.

The Referee Board of Consulting Scientific Experts reported investigations from which it was concluded that the long-continued use of saccharin is liable to impair digestion, and that as it possesses no nutritive value its use as a substitute for sugar lowers the food value of the sweetened product. Its use in foods entering interstate or foreign commerce, the District of Columbia, or the Territories, was thereupon prohibited after January 1, 1912. Other decisions were also promulgated by the Department of Agriculture prohibiting the artificial yellowing of immature citrus fruits, and regulating the labeling of cocoa and chocolate, molasses, evaporated milk, homogenized milk and similar products, and of charlock when used as a substitute for mustard.

Public interest in the principles of pure food and drug legislation was strongly sustained throughout the year, and attention was acutely directed to the administrative details of the act when charges of a technical nature were preferred against Dr. H. W. Wiley, chairman of the Board of Food and Drug Inspection, and others associated with him in the inspection work. A detailed investigation by a congressional committee was held during July and August, but no recommendations had been filed at the close of the year. In September, however, President Taft, to whom the case had been presented for final settlement, announced his exoneration of Doctor Wiley, and warmly commended his efforts in the cause of pure food and drugs. For food control in the States and in foreign countries, see AGRICULTURAL LEGISLATION.

COST OF FOOD. Although prices of certain commodities decreased during the first half of 1911, *Bradstreet's* estimates for December indicated the highest levels since May, 1910, and with the exception of 1909 the highest ever recorded for December. There was a general upward drift of coffee, sugar, potatoes, eggs, butter, and certain cereals, sugar in particular reaching the highest point for twenty-two years. The chief decreases were in wheat and flour, and in sheep and hog products.

A tendency toward uniformity of prices throughout the year was observed in the case of butter, eggs, and poultry. This was attributed, in a comprehensive study by the United States Department of Agriculture, to the holding of goods in cold storage. The view was taken that the prevailing methods of cold storage are conducive to speculation, and full pub-

licity as to the quantity of goods in storage was recommended as a remedy.

The continuance of the high prices led to much discussion of causes and their removal. There was an evident desire on the part of the general public to solve the conundrum propounded by the Secretary of Agriculture: "The consumer pays a dollar for food; the farmer gets less than fifty cents for it. Who gets the rest?" In many cities there was an effort to bring closer together the producer and consumer by the establishment of a public market system, and the mayor of Indianapolis purchased and sold at reduced prices such commodities as potatoes, turkeys, nuts, etc.

As in previous years the high cost of living was of world-wide prevalence, indicating that its causes were by no means localized. Efforts were being made at the close of the year to secure the appointment of an international commission to investigate the problem in detail.

NUTRITION STUDIES. The public is insisting more strongly each year upon clean food, produced and sold under sanitary conditions. In nine States more stringent legislation was enacted as to the inspection of stores, restaurants, bakeries, dairies, etc. (See AGRICULTURAL LEGISLATION.) Much progress was also made by municipalities and in non-official ways. Among these were the inspection of markets by women's clubs, the devising of score-cards for restaurants, and particularly by the stimulation of the demand for clean milk and other foods, even at the increased prices which the improved methods of handling such goods often necessitate.

Considerable scientific evidence of the importance of sanitary methods was brought out during the year. Foods exposed in stores on tables and racks were proved to become laden with dust and bacteria, while the use of glass cases effected great improvement. Wrapping baker's bread in paraffin paper while still warm from the oven benefited its sanitary condition and quality, and also doubled the period in which it was merchantable. A reddening of codfish during curing, which has caused considerable losses, was traced to bacterial growth, and its prevention to sanitary methods; and similar results attended a study of ham souring in packing-houses, and spoilage of factory-made tomato ketchup. Oysters and other shell fish were again shown to become seriously contaminated when grown or floated in waters exposed to sewage infection, and it was learned that boiling must be prolonged at least fifteen minutes to destroy pathogenic organisms. On the other hand it was estimated that only a relatively small acreage of the oyster beds is now subject to serious contamination.

An extended comparison by English investigators of the nutritive value of breads made from white and other flours corroborated the conclusions drawn by the United States Department of Agriculture several years ago, that the differences in composition between flours of the same grade but different wheats were frequently greater than those between flours from different systems of milling, and that in the average mixed diet the use of white, whole wheat, or graham bread was largely a matter of personal preference. Results with bleaching flour and incorporating various "improvers" were not wholly uniform, but strong arguments were adduced against these practices.

In studies of jelly-making, beet sugar proved

as satisfactory as cane sugar, thus overturning a prevalent opinion. The ability of fruits to jelly was found to depend largely upon their content of pectin and acid, and by the addition of these constituents jellies may be prepared from many fruits hitherto not utilized for the purpose, such as blueberries, strawberries, and cherries. In other studies, cinnamon and clove were found to possess marked preservative action against bacteria, and the more extended use of these spices was suggested in preference to pepper and ginger, which have slight preservative properties.

The nutrition investigations of the United States Department of Agriculture on the more effective utilization of agricultural products as food were devoted especially to a continuation of the studies on cheese. Cheese of all sorts and stages of ripening was found to be very thoroughly digested, and even in large amounts did not cause constipation. Its more extended use in the diet was recommended, and recipes were prepared with this end in view. The respiration calorimeter of the department was still further perfected, and used in an investigation of the ripening of fruits which promises to be of great scientific and practical value.

Additional data were accumulated during the year bearing on the much-debated question of the food requirements of the body, especially as reflected by existing food habits among large groups of people. Further studies of conditions among native tribes of India strengthened previous conclusions as to the intimate relationship between the satisfactory physical development and general characteristics of a people and a generous diet, particularly as regards nitrogen. Other studies indicated that the amount of protein alone is an insufficient measure of the richness of a diet in building material, that there may occur deficiencies in the requisite iron, calcium, and phosphorus, and that in such cases the increased use of milk, cheese, and similar products is a feasible remedy.

Public interest in institution dietetics, notably in the feeding of school children, was well sustained, and instruction in food and nutrition was widely offered. At the close of the year over 1200 collegiate and secondary institutions were providing courses in home economics, of which about 100 were of college grade, 100 normal schools, and 200 institutions for negroes and Indians.

An International Hygiene Exhibition was held at Dresden from May to October, at which one section was devoted to food and nutrition. This brought together a great mass of illustrative material from all over the world. The Second Congress of Alimentation met at Liège October 1-4, under the patronage of the king of the Belgians.

BOOKS OF THE YEAR. Some of the more important books to appear in 1911 were the following: H. C. Sherman, *Chemistry of Food and Nutrition* (New York); G. C. Smith, *What to Eat and Why* (Philadelphia and London); C. Watson, *Food and Feeding in Health and Disease* (Edinburgh and London); J. C. Olsen, *Pure Foods: Their Adulteration, Nutritive Value, and Cost* (Boston and New York); W. and W. C. Jago, *The Technology of Bread Making* (Chicago); G. Pellerin, *Préparation, fabrication, et conservation des denrées alimentaires* (Paris); A. Villiers, E. Collin, and M. Fayolle, *Traité des falsifications et altérations des sub-*

stances alimentaires (Paris); J. Kaup, *Ernährung und Lebenskraft der ländlichen Bevölkerung* (Berlin).

FOOD CONTROL IN THE UNITED STATES AND FOREIGN COUNTRIES. See **AGRICULTURAL LEGISLATION**.

FOOD, COST OF. See **AGRICULTURE**.

FOOD, HIGH COST OF. See **FRANCE**; and **PRICES**.

FOOD RIOTS. See **PRICES**.

FOOT-AND-MOUTH DISEASE. See **VETERINARY SCIENCE**.

FOOTBALL. The football experts differed at the end of the 1911 season as to whether the tinkering with the rules during the last few years had accomplished the desired aim. The radical changes made were the result of the large number of deaths and serious injuries among the players which led several colleges to abandon the sport entirely in 1908, and aroused widespread criticism on the part of the public. The most important of the new rules were those that did away with mass plays, introduced the forward pass, permitted a player to be taken out and substituted again at any time, and divided the game into four periods instead of two halves.

Statistics gathered fail to show that the innovations decreased the number of deaths and injuries. There were 15 deaths and 166 injuries reported in 1907; 15 deaths and 338 injuries in 1908; 33 deaths and 246 injuries in 1909; 18 deaths and 429 injuries in 1910, and 13 deaths and 509 injuries in 1911.

A secondary aim of the rule makers was to make football a more open game and more interesting from the spectator's point of view. Opinions vary as to whether this purpose was attained. The large number of tie games played since the new rules went into effect caused considerable dissatisfaction. This feeling was augmented by the results of the more important contests played in 1911, and inspired the criticism that the changes made had turned football into a game where a strong defense counted for more than a strong offense. The record of Princeton in 1911 was cited as a proof of this contention.

Princeton's victories over Yale and Harvard, which gave the orange and black team a clear title to the 1911 football championship, were both due to a well-developed and alert defense, the team's playing on the offense being much weaker than its opponents'. Samuel B. White, one of the Princeton ends, won the individual honors of the season by his long runs in the Yale and Harvard games which resulted in touchdowns and brought victory to his team.

According to the majority of the experts the leading Eastern college football teams should be ranked in the following order: Princeton, Harvard, Yale, Navy, Dartmouth, Army, Carlisle Indians, Pennsylvania State, Trinity, Brown, Pennsylvania, Cornell, Lafayette, Georgetown, Syracuse, Williams, New York University, Amherst, Colgate, and Lehigh.

The results of the principal games played by the Eastern colleges follow: Princeton defeated Stevens 37-0, Rutgers 37-0, Villanova 31-0, Colgate 31-0, Holy Cross 20-0, Harvard 8-6, Dartmouth 3-0, and Yale 6-3, and played a scoreless tie with Annapolis, and a 6-6 tie with Lehigh. Harvard defeated Bates 15-0, Holy Cross 8-0, Williams 18-0, Amherst 11-0, Brown 20-6, and Dartmouth 5-3. Harvard lost to Princeton 6-8 and played a scoreless tie with Yale. Yale de-

feated Wesleyan 21-0, Holy Cross 26-0, Syracuse 12-0, Virginia 33-0, Colgate 23-0, New York University 28-3, and Brown 15-0. Yale lost to West Point 0-6, and to Princeton 3-5, and played a scoreless tie with Harvard. Annapolis defeated Johns Hopkins 27-5, St. John's 21-0, Washington and Jefferson 16-0, North Carolina 17-6, West Virginia 32-0, and West Point 3-0. Annapolis played scoreless ties with Princeton, Western Reserve, and Pennsylvania State.

Dartmouth defeated Norwich 18-3, Bowdoin 23-0, Colby 12-0, Holy Cross 6-0, Williams 23-5, Vermont 12-0, and Amherst 18-6. Dartmouth lost to Harvard 3-5, and to Princeton 0-3. West Point defeated Vermont 12-0, Rutgers 18-0, Yale 6-0, Lehigh 20-0, Bucknell 20-2, and Colgate 12-6. West Point lost to Annapolis 0-2, and played a scoreless tie with Georgetown. The Carlisle Indians defeated Lebanon Valley 53-0, Muhlenberg 32-0, Dickinson 17-0, Georgetown 28-5, Pittsburgh 17-0, Lafayette 19-0, Pennsylvania 16-0, Harvard 18-15, Johns Hopkins 29-6, and Brown 12-6. Carlisle lost to Syracuse 11-12. Pennsylvania State College defeated Gettysburg 31-0, Cornell 5-0, Villanova 18-0, Pennsylvania 22-6, Colgate 17-9, and Pittsburgh 3-0. Pennsylvania State played a scoreless tie with Annapolis.

Trinity defeated Amherst 13-0, Colgate 9-0, Wesleyan 14-13, Haverford 24-6, and played a scoreless tie with New York University, and a 6-6 tie with Brown. Brown defeated Bowdoin 33-0, Pennsylvania 6-0, Tufts 30-0, Vermont 6-0. Brown lost to Harvard 6-20, to Yale 0-15, and to Carlisle 6-12, and played a 6-6 tie with Trinity. Pennsylvania defeated Gettysburg 5-3, Franklin and Marshall 14-0, Ursinus 9-0, Dickinson 22-10, Villanova 22-0, Lafayette 23-6, and Cornell 21-9. Pennsylvania lost to Brown 0-6, Pennsylvania State 6-22, Carlisle 0-16, and Michigan 9-11.

Minnesota and Michigan were the two strongest teams among the Western colleges, while Vanderbilt held first rank in the South.

The championship games of the Intercollegiate Soccer League resulted in a tie between Harvard and Haverford, each of which won 3 games, lost 1, and drew 1. Columbia finished second with 2 victories, 1 defeat, and 2 draws. Pennsylvania won 2, lost 3; Yale won 1, lost 2, and drew 2, and Cornell won 0, lost 3, and drew 2. The Crescent A. C. won the championship of the Field Club Soccer League of New York and New Jersey, going through the season without suffering defeat. The final standing of the clubs in the league follows: Crescent A. C. won 7, lost 0; Staten Island F. C. won 6, lost 1; Oritani F. C. won 4, lost 4; Montclair A. C. won 1, lost 7; Bensonhurst F. C. won 1, lost 7.

A feature of the soccer season was the tour made by the Corinthians of England through Canada and the United States. The visitors only lost one game to the All-Toronto team. The English Soccer League championship was captured by Manchester United, which won 22 games, lost 8, and drew 8. The annual match between Oxford and Cambridge was won by Oxford by a score of 3 to 2.

FOREIGN TRADE. See FINANCIAL REVIEW, and under foreign countries.

FOREIGN RAILWAYS. See RAILWAYS, view, and under foreign countries.

FOREST, JOHN ANTHONY. An American Roman Catholic bishop, died March 11, 1911. He was born in St. Martin's, Saint Germain, France, in 1838 and was educated for the priest-

hood in that country. In 1863 he immigrated to the diocese of Galveston, Texas. After filling several pastorates in that city he was consecrated bishop of San Antonio, in 1895.

FOREST FIRES. See FORESTRY; MICHIGAN.

FOREST PRODUCTS. See FORESTRY.

FORESTRY ASSOCIATION, AMERICAN. See FORESTRY.

FORESTRY SCHOOLS. See FORESTRY.

FORESTS, NATIONAL. See FORESTRY.

FORESTRY. Among the important occurrences in the forestry situation in this country since 1907 are the extension of the area of the national forests from 162,278,358 acres in 1907 to 168,165,163 acres in 1911; the division of the national forests into six districts with headquarters at Missoula, Mont., Odgen, Utah, Portland, Ore., Denver, Col., San Francisco, Cal., and Albuquerque, N. Mex., in order to facilitate administration; the passage of a law providing for the Appalachian and White Mountain national forests; and the enormous fire losses in 1910, when timber valued at more than \$175,000,000 was destroyed, several towns in Idaho burned, and 78 persons killed while fighting the fires. The expense of bringing these fires under control was more than \$1,500,000. Congress in 1911 appropriated an emergency fund of \$1,000,000 to be available for fire control.

A notable event during the past year was the ruling of the United States Supreme Court affirming the right of the Secretary of Agriculture to make regulations for the management of the national forests, thus definitely establishing a forest policy for the United States government. Fortunately the country was spared the enormous fire losses that characterized 1910, although in some of the forests the conditions were favorable for destructive fires. A better system of patrolling the forests, developed from the experience of the previous year, aided very materially in reducing the number and extent of the forest fires. In Maine there were serious forest fires in the summer of 1911, and the State fund for fire protection, supplemented by \$10,000 from federal sources, was exhausted in bringing them under control. A fire broke out near San Bernardino, Cal., on July 25, and before it was stopped 19,000 acres, most of which was covered with chapparal, had been burned over.

The annual meeting of the American Forestry Association was held in Washington, D. C., in January, 1912. The Hon. R. P. Bass, governor of New Hampshire, who succeeded Hon. Curtis Guild when the latter was appointed ambassador to Russia, was reflected president. The Association of Eastern Foresters met at Lake Saranac, N. Y., July 14 and 15, 1911. A Forestry Convention of the Dominion of Canada was held in Quebec, January 18-20, 1911. In connection with the International Agricultural Congress at Madrid, the section of forestry adopted a series of resolutions which are concerned with the subject of state reafforestation. Meetings of the supervisors and forest assistants were held in each of the forest districts of the national forests. There have been organized thirty-two State and local forestry associations in the United States, most of which have annual meetings.

The exports of forest products from the United States for 1911 were valued at \$103,000,000, of which lumber furnished \$60,000,000, timber and logs \$17,000,000, and naval stores \$25,000,000.

During the same period the imports were valued at \$164,000,000, as follows: Lumber, \$21,000,000; wood pulp, \$14,000,000; rubber, gums, etc., \$129,000,000. A compilation of recent specifications for railroad ties showed that seventy-eight species of trees will be accepted in the United States for that purpose. Some of the species require preservative treatment for the best results.

THE NATIONAL FOREST SERVICE. During the past year, in order to facilitate administration, the national forests were divided into somewhat smaller units. At the end of the fiscal year 1911 there were 153 forests under administration, the average area being 1,070,545 acres. The total net area within the boundaries of the 156 national forests on June 30, 1911, was 168,165,163 acres, 4,598,705 acres having been eliminated and 2,806,267 acres added by presidential proclamation during the fiscal year. The distribution by States was as follows:

**NATIONAL FOREST AREA BY STATES,
JUNE 30, 1911**

State	Acres
Arizona	13,883,452
Arkansas	1,184,012
California	21,104,069
Colorado	13,408,138
Florida	318,960
Idaho	18,139,435
Kansas	156,376
Michigan	84,011
Minnesota	844,473
Montana	16,192,504
Nebraska	521,065
Nevada	5,424,254
New Mexico	9,810,522
North Dakota	6,224
Oklahoma	61,023
Oregon	13,740,139
South Dakota	1,073,780
Utah	7,201,695
Washington	9,914,314
Wyoming	8,420,497
Alaska	26,643,260
Porto Rico	32,975

On July 1, 1911, further additions of 364,480 acres and eliminations of 84,969 acres became effective. The receipts from the national forests during the fiscal year 1911 were: From timber, \$1,014,769.84; from grazing, \$935,490.38; and from special uses, \$76,645.93; a total of \$2,026,906.15. Of this amount \$482,376.73 will be paid to the several States and Territories, under the existing law, to be expended on roads and schools. The total timber cut of the national forests last year was 498,166,000 board feet, valued at \$1,039,923.13, a slight falling off from 1910, due to somewhat lower stumpage values, but more especially to the increased ratio of the cut under free use. The approximate stand of timber, including cordwood, in the national forests, exclusive of Alaska, is given at 618,000,000,000 board feet. An estimate of the timber in the Alaska National Forests is 69,000,000,000 feet.

The Weeks bill, for acquiring forest land in the Appalachian and White Mountain regions, became a law March 1, 1911, making \$2,000,000 available for the purchase of land. Proposals covering 1,250,000 acres have been received, and a liability of \$224,000 has already been entered into for the purchase of 31,377 acres.

In his last report to the Secretary of Agriculture the forester calls attention to the presence in the national forests of approximately

15,000,000 acres of land suited to forest purposes that have been denuded by fire. Natural means will reforest half of this area, but there still will remain 7,500,000 acres, which will have to be artificially reforested. The Forest Service has begun experimental work on the most economical methods of reforestation, and during the year 23,235 acres were seeded and 1995 planted to various forest tree species. In connection with this work thirty forest nursery stations are maintained, the present stock of which is about 35,000,000 seedling and transplanted trees. The special laboratory of the Forest Service at Madison, Wis., has been well equipped and is conducting investigations on various forest products. These include technical studies of the physical characteristics of different woods, the utilization of inferior and waste timber, wood pulp, paper, etc. As a result of four years' continuous experimentation, it has been found that light chipping of pine trees prolonged the turpentine period, caused less loss of merchantable timber, and resulted in a considerable increase in the yield of turpentine per crop. Under cooperative agreement the Forest Service is studying the forest resources of South Carolina, Mississippi, Louisiana, Florida, Tennessee, North Carolina, Virginia, and Illinois; protecting the watersheds of navigable streams against fires, in which case the States must appropriate a sum equal to that spent by the federal government; and the examination of individual timber tracts for the purpose of advising owners as to proper methods of management. The personnel of the Forest Service for 1911 embraced 2624 employees, and the total resources for the same period were \$5,954,898.52.

PROGRESS IN STATE FORESTRY, LEGISLATION, ETC. In the Philippines the privilege of free use of timber under certain restrictions has been continued for another period of five years. There had been entered to June 30, 1910, 183 private woodlands, embracing about 726,000 acres. Three special forests, of about 1,360,000 acres, have been set aside, and they will be brought under conservative management as soon as funds are available. Forty-two communal forests have been established, and applications are pending for ninety-one more. The forest school for native rangers has proved a success, and twenty-four pupils were enrolled the first year. Forest nurseries have been established in connection with forest extension experiments. The gross revenue from the Philippine forests for 1910 was 271,581.74 pesos, and the expenditures were 152,161.33 pesos. Arrangements have been made by the Philippine Bureau of Forestry for the sale of prepared specimens of the 400 or more species of merchantable woods of the islands. In Hawaii on February 10, 1911, there were twenty-three forest reserves, comprising 575,154 acres, about three-fifths of which are government land. The experimental introduction of rubber trees on the Island of Maui has progressed to the stage that tapping was begun in November, 1911, on 5000 trees.

A recent report shows that in Massachusetts more than 2000 acres have been planted under the direction of the State forester and 1500 acres by private parties, water and sewerage boards, etc. Two small demonstration forests have been established in Maryland. The New York State Conservation Commission was created by a law approved July 12, and among its duties are those formerly exercised by the Forest, Fish,

and Game Commission. The Department of Forestry of New York sold during the spring of 1911 over 1,700,000 trees for planting. The Ohio legislature appropriated \$19,400 for forestry investigations in 1911-12. In Pennsylvania and neighboring States the chestnut trees are threatened by the chestnut bark disease, and the legislature of Pennsylvania appropriated \$275,000 for its study and control. The federal government has also begun an investigation along similar lines. A report of the Tennessee Geological Survey shows that about 35 per cent. of the area of the State is in forests, a large part of which should be continued as such. Vermont has lately been given two tracts of forest land, amounting to about 900 acres and including some of the highest points in the State, to add to its forest system. The legislature has increased its appropriations for forestry work to \$20,000. California, Oregon, and Washington have been active in forestry legislation, especially in regard to protection from fires. Minnesota has adopted what has been termed a model forest code. Wisconsin has strengthened its forest laws and has made appropriations for additional purchase of forest lands. Florida, Louisiana, and New Hampshire have enacted important changes in their laws relating to forests. The planting operations of the Pennsylvania Railroad Company in the spring of 1911 included about 50,000 trees, mostly red oak and Scotch pine. The Delaware & Hudson Railroad and the New York, New Haven & Hartford Railroad have both taken up active work on forestry problems.

FORESTRY IN FOREIGN COUNTRIES. In Canada a new Forest Reserve act was adopted in May, 1911. Changes have been made in the forest reserves, the total area now being about 16,119,000 acres. During 1910 there were cut under timber license from the reserves in Canada 27,000,000 board feet of lumber, and in addition a large amount of poles, posts, and wood was cut under settlers' permits. In Prussia the net income from the forests under the Forest Department for 1911 was estimated at \$18,500,000. The average cut is given at fifty-four cubic feet from nearly 7,000,000 acres. The number of persons engaged in forest management in 1911 in Prussia was 6125. The public forests of Austria embrace about 2,800,000 acres, from which a net income of \$950,000 was estimated for 1911. Free wood and other rights valued at over \$300,000 were granted in addition. The Norwegian forests are estimated at 26,945 square miles. Of this area about 17,000,000 acres are productive and the state controls 2,500,000, all of which is under systematic management. The forests of Sweden are said to be owned by private individuals and the state in the proportion of 75 and 25 per cent., respectively, but the privately owned lands are under the control of county conservation boards to a considerable extent. Italy, in connection with its forest system, has just provided for a Forestry Institute for the technical training of forest officers. The Belgian minister of agriculture has submitted a report on fires and fire control. A committee has been appointed to select a site for forest demonstration work in Scotland. In India 24.5 per cent. of the total area has been brought under the control of the forestry department, and working plans covering 8,540,000 acres are in operation, and half the total forest area is under protection. In Burma at the end of

1910 65 per cent. of the area was under forest. Practically all the most valuable teak-producing regions are now included in forest reserves. Extensive planting operations have been begun in New Zealand.

FORESTRY SCHOOLS, PERSONNEL, ETC. The oldest forest high school in Germany, that at Aschaffenburg, Bavaria, closed its doors in 1911 after ninety years of service. A school for rangers has lately been established in Burma. There are now sixty-nine institutions in the United States which give graduate or undergraduate instruction, and efforts are being made to standardize their instruction. The Yale Forest School has received a gift of \$100,000 for a new building, and a like amount for the endowment of a chair of instruction in forest management. A State college of forestry has been established by the New York legislature at the University of Syracuse, and \$55,000 appropriated for it; and after a lapse of eight years the forestry department of Cornell University has been reopened. Lehigh University, the University of Vermont, and New Hampshire State College have established forestry courses. A school for forest rangers has been provided at the University of Wisconsin, the work covering two years, and short courses in the instruction of rangers have been provided at a number of Western institutions, notably at the universities of Colorado, Montana, and Washington.

Among the books treating of some phases of forestry that appeared in 1911 are: B. E. Fernow, *History of Forestry*, revised and enlarged; H. N. Whitford, *Forests of the Philippines*; H. S. Graves, *The Principles of Handling Woodlands*; Isaiah Bowman, *Forest Physiography*; F. S. Matthews, *Familiar Trees and their Leaves*, third edition.

FORMOSA, or TAIWAN. An island off the Chinese coast, a Japanese dependency. Area, as officially estimated, 2324 sq. ri (13,841 sq. miles). Estimated population, 3,392,063. The census of October 1, 1905, showed a population of 3,039,751 (of whom 2,673,280 Formosans), or a resident population of 3,047,391. The census did not include the savage inhabitants and covered only the portion of the island under actual Japanese control, that is, the western part, and a strip along the east and south coasts, or an area of 1222 sq. ri (7277 sq. miles). The Japanese are steadily enlarging their administrative territory. Estimated resident population of the principal towns, December 31, 1908: Dai-Hoku (Taihoku or Tai-pei), the capital, 87,745; Dainan (Tainan), 54,066; Rokko (Lukong), 19,124; Kagi (Chia-i), 19,749; Keilung (Keelung), 17,858. The 1905 census showed that 97.62 per cent. of the inhabitants were illiterate, but the Japanese are developing an educational system. At the end of 1907 there were 1126 schools of all kinds, with 1944 teachers (1828 men), and 59,321 pupils (52,907 boys).

The leading agricultural products are rice, tea, sugar, sweet potatoes, ramie, jute, and tumeric. The sugar industry is showing a notable development. Camphor (a government monopoly) is worked in the forests. Total area under all crops (estimate 1909), 1,618,800 acres. Livestock (1904): 227,000 water buffaloes, 89,000 oxen, 977,000 swine, 117,000 goats. Gold output (1908), 429,241 momme (1 momme = 3.75 grammes). Coal, silver, sulphur, and petroleum are mined. Fishing is carried on; and the

chief manufactures are sugar, flour, oil, tobacco, spirits, soap, glass, bricks, and ironwork.

The trade is largely with Japan, and in 1910 amounted to 48,923,000 yen imports and 59,923,000 yen exports (1909, 36,597,000 and 47,998,000 yen respectively); Japan furnished imports to the value of 29,070,000 yen and received exports valued at 47,937,000 yen (1909, 24,007,000 and 36,310,000). Government railway in operation in 1911 (since 1908), 271 miles. Plans for two branches of 60 and 41 miles have been adopted. In addition, there is a considerable mileage of private light railways to the sugar plantations, etc. Telegraph lines, 1000 miles; wires, 3000. Telephone lines, 790 miles; wires, 4030. Post offices (1909), 127. Estimated revenue (mostly from inland taxes, customs, and Japanese subsidies) and expenditure (chiefly for internal administration and public works) balanced at 29,951,449 yen for the fiscal year 1910; 38,689,763 for 1911; 43,651,651 for 1912. A governor-general (1911, Lieut.-Gen. Count Sakuma) administers the dependency.

FORTIFIED WINES. See LIQUORS.

FT. SCOTT. See KANSAS.

FORTUNA ISLAND. A dependency of New Caledonia (q. v.).

FOSS, EUGENE M. See MASSACHUSETTS.

FOSS, SAM WALTER. An American librarian and poet, died February 25, 1911. He was born in Candia, N. H., in 1858 and graduated from Brown University in 1882. From 1883 to 1887, he was editor of the *Saturday Union* of Lynn, Mass., and from 1887 to 1894 edited the *Yankee Blade* of the same city. He did general writing from 1894 to 1898 and in the latter year became librarian of the Somerville public library. He published many poems which were widely read. These were collected in several volumes: *Back Country Poems*, (1894); *Whiffs from Wild Meadows* (1895); *Dreams in Homespun* (1897); *Songs of War and Peace* (1898) and *Songs of the Average Man* (1907).

FOSSILS. See GEOLOGY.

FOSTER, FRANK PIERCE. An American physician and teacher, died August 13, 1911. He was born in Concord, N. H., in 1831 and was educated in the schools of that city. He graduated from the College of Physicians and Surgeons in 1892 and for two years following took hospital courses. In 1865 he was acting assistant surgeon in the United States army. He engaged in general practice in New York City and was at the same time editor of the *New York Medical Journal*. He was co-author of the *Illustrated Encyclopædia Medical Dictionary*.

FOUNDATIONS. The most important building foundations of the year were those of the new Woolworth building, a 775-foot high structure, under erection in New York, on Broadway, between Barclay Street and Park Place. This building is fifty-five stories, with an estimated weight of 125,000 tons, and was designed in accordance with the building code of the city of New York, which permits a load of fifteen tons per square foot on the foundations. The steel framework comprising the structure contains 20,000 tons of steel, and the various columns are supported on sixty-nine piers of partly reinforced concrete, which were sunk through a deep bed of quicksand down to solid rock, at a distance of 110 feet below the sidewalk. The caissons used in building these

piers were either circular or rectangular shafts, and varied from 8 ft. 3 in. to 8 ft. 9 in. in diameter. They were loaded to a maximum of eighteen tons per square foot. In most cases the axes of the supporting columns coincide with the axes of the caissons, but where it was found necessary to place the columns eccentrically the load was transferred to the centre of the caisson by means of heavy steel girders, which acted as cantilevers. These girders were perfectly massive and stiff, two inches in thickness in the web, and having an average depth of eight feet.

FOURTH OF JULY ACCIDENTS. See TETANUS.

FRANCE. A republic of western Europe, having (with Belfort) 87 departments. Capital, Paris.

AREA AND POPULATION. Area, 536,464 sq. kilometers (207,129 sq. miles). Population (1906), 39,252,245. A census was taken in March 11, 1911; the returns show an increase during the last decade of 349,264, making a total population of 39,601,509. The gain was chiefly in the cities, the rural districts showing a decrease. Of the increase not more than half is attributable to the excess of births over deaths, the remainder being due to immigration, particularly notable near the Italian and Belgian frontiers. Marriages, 1909, 307,951; 1910, 309,289. Divorces, 1909, 12,874; 1910, 13,049. Living births, 1909, 769,969 (stillbirths, 35,914); 1910, 774,358 (35,944). Deaths, 1909, 756,545; 1910, 703,777. Surplus of births over deaths, 1909, 13,424; 1910, 70,581 (the extraordinary surplus in 1910 was due to a decreased death-rate, rather than to an increased birth-rate). Population (1911) of Paris, 2,888,110; Marseilles, 550,619; Lyons, 523,796; Bordeaux, 261,678; Lille, 217,807; Nantes, 170,535; Saint-Etienne, 148,656; Toulouse, 149,576; Nice, 142,940; Havre, 136,150; Rouen, 124,987; Roubaix, 122,723; Nancy, 119,949; Rheims, 115,178; Toulon, 104,582. Population of Paris in 1872, 1,851,792; in 1886, 2,344,550; in 1906, 2,763,393.

EDUCATION, ETC. Primary education is free and compulsory. In 1909 the conscription list carried 315,452 men of the class of 1908, of whom 3.19 per cent. could neither read nor write, 1.21 per cent. could read only, 26.74 possessed the rudiments, and 64.20 a fair elementary education; the remainder had received secondary instruction.

Kindergarten schools (1908-9), 3986; of which 2648 were public and 1169 private lay schools, and 12 were public and 157 private clerical schools. Teachers in all schools, 8539 (277 clerical). Children in lay schools, 604,798; in clerical, 23,125; total in all schools, 627,923 (318,102 boys, 309,821 girls).

Primary schools (1908-9): 81,847 (1003 clerical). Instructors, 154,586 (3217 clerical). Pupils, 5,629,906 (5,613,927 in lay and 115,979 in clerical schools). Higher primary schools (1906-7), 2034; with 5514 teachers and 87,668 pupils. Primary normal schools (1909-10), 169; with 1718 instructors and 9450 students. State expenditure on primary instruction (1908), 209,267,437 francs.

Secondary schools (1909): 343 for boys, with 97,128 pupils; 119 for girls, with 28,692. Students in state universities (1910), 41,044. There are special and technical schools and colleges of all kinds; normal schools; schools of art and

science; besides military, naval, and commercial colleges.

The state especially protects no religion, but expended in 1911 about 310,000 francs in pensions and allowances to the Roman Catholic clergy. Total voted in 1911 for worship, 476,100 francs.

AGRICULTURE. In 1908 the surface of the country was divided as follows: 23,590,915 hectares under cultivated crops, including sown meadows; 4,847,900 under natural meadows; 1,478,160 under forage; 3,601,830 under pasture; 1,723,635 under vines; 1,247,638 under divers industrial plants, truck gardens, etc.; 9,300,760 under woods and forests; 3,951,970 uncultivated lands; 3,203,177 not included in above categories; total, 52,954,085 hectares. Area (in hectares) under principal grain crops and yield (in thousands of quintals) for 1910 and 1911 (1911 yield preliminary), with the yield per hectare in 1910, are as follows:

	Hectares	1000 quintals	Qs.
	1910	1911	1911 per ha.
Wheat ...	6,554,370	6,331,350	68,846 87,128 10.5
Rye	1,211,730	1,163,410	11,147 12,222 9.2
Barley ...	748,480	774,425	9,713 11,094 13.0
Oats	3,951,300	4,040,100	48,171 50,843 12.2

Area (in acres) and yield (in bushels or tons) of other crops in 1909, 1910, and 1911 (1911 preliminary):

	1909	1910	1911
Maslin, area....	350,000	339,700	301,800
Maslin, yield....	5,619,000	5,426,000	.....
Potatoes, area....	3,823,600	3,765,800	3,837,463
Potatoes, yield....	613,041,000	308,885,036	423,573,472
Beets, area*....	585,100	575,900	591,829
Beets, yield a....	6,894,000	5,701,559	4,255,925
Beets, area†....	121,400	129,505	134,766
Beets, yield a....	2,171,000	2,093,896	1,532,434
Beets, area‡....	1,633,100	1,597,427	1,629,130
Beets, yield a....	25,529,000	23,122,837	16,315,186

* Sugar beets. † Distillery beets. ‡ Fodder beets. a In tons (2000 lbs.).

Area sown to corn in 1907, 1,236,000 acres; production, 23,284,000 bushels (24,000,000 bushels in 1908). Buckwheat, 1,243,000 acres; 20,585,000 bushels. Hay and grasses crop, 402,898,000 cwt. Olives (about) 328,648 acres, 125,000 tons. Area planted to vines (exclusive of Corsica) in 1909, 1,625,629 hectares; production, 54,445,860 hectoliters (33 hectoliters per hectare; value, 980,025,480 francs (18 francs per hectoliter). In 1910, 1,617,659 hectares, 28,338,843 hectoliters, 1,105,214,877 francs (on the basis of 39 francs per hectoliter). The price in 1910 (the highest since 1886) more than offset the yield of the year previous. The preliminary figures for 1911 place the yield at 44,885,550 hectoliters. In the champagne district, however, only about 160,000 hectoliters are reported—not more than a third of the normal yield. The cider production in 1909 was 9,755,014 hectoliters; in 1910, 12,333,102. Hay and forage crops in 1909, 830,984,000 quintals; value, 3,453,663,000 francs. Value of fruit and market-garden products, 277,890,000 francs.

Livestock (December 31, 1909): 3,236,000 horses; 14,298,000 cattle; (1908) 17,456,380 sheep; 7,202,430 swine; 1,124,870 goats.

MINING AND OTHER INDUSTRIES. No later figures were available than were given in the YEAR BOOK for 1910 and they will therefore not be repeated in detail. The output and value of the chief mining products in 1908 were as follows:

Coal, 36,633,000 tons, 584,341,000 francs; iron ore, 10,057,000 tons, 45,538,000 francs; salt, 708,784 tons, 10,849,317 francs. In 1907 the output from all quarries was 248,183,265 francs. According to the 1901 census the manufacturing industries employed 5,819,855 persons; the extractive industries, 266,351; and fishing, 67,772. The sugar yield in 1908-9 was 723,081 tons, against 656,872 in 1907-8. The alcohol production in 1908 was 55,836,000 gallons, against 55,326,000 in 1907. In 1908 the state match monopoly yielded a net profit of 29,453,964 francs and the profits of the state monopoly of manufactured tobacco were 389,735,000 francs.

COMMERCE. The general and special trade is shown below in thousands of francs:

	Imports		Exports	
	Gen.	Spec.	Gen.	Spec.
1908	7,180,400	5,640,500	6,620,300	5,050,700
1909	7,856,500	6,246,115	7,482,300	5,718,054
1910*	9,102,600	6,759,850	8,104,900	6,005,735

* Final figures place the imports in the special trade at 7,173,300,000 francs; the exports at 6,233,800,000.

Imports of coin and bullion 1908, 1,173,000,000 francs; 1909, 540,000,000; exports 1908, 114,000,000; 1909, 361,000,000. Trade (special) by great classes for 1909 and 1910 in thousands of francs:

	Imports		Exports	
	1909	1910	1909	1910
Food-stuffs ..	952,329	1,266,847	823,577	781,044
Raw mat'ls ..	4,113,045	4,146,113	1,693,776	1,798,933
Mfrs.	1,180,741	1,346,890	2,748,022	2,933,549
By parcels				
post			452,699	492,209
Total mdse.	6,246,115	6,759,850	5,718,054	6,005,735

Principal articles of special trade, 1908 and 1909, in millions of francs:

	Imports		Exports	
	1908	1909	1908	1909
Wool	549.0	634.4	Cottons	281.1 332.0
Coal	391.2	442.1	Silks	270.2 316.9
Cotton	389.9	494.7	Wool	228.6 337.7
Silk	279.9	331.5	Skins	217.9 243.7
Seeds (oil) ..	253.7	292.1	Wine	196.8 214.4
Skins	239.7	312.9	Woolens ..	196.1 212.1
Machines	221.8	216.2	A. de P.	183.9 178.3
Timber	206.3	197.9	Novelties ..	145.6 126.4
Copper	138.9	122.6	Silk	133.9 164.0
Wine	116.5	123.8	Auto's	127.3 146.6
Rubber	115.2	208.8	Clothing	123.3 145.5
Coffee	104.3	112.3	Chem. p.	122.0 147.8
Cereals	97.0	152.9	Metal w.	110.0 99.1
Minerals	87.9	86.2	Machines	92.5 90.7
Petroleum	86.9	99.4	Paper	84.8 93.1
Nitr. soda	83.8	56.9	Sugar	81.4 83.1
Flax	79.6	81.2	Glass, etc.	80.2 77.0
Feathers	78.1	85.3	D. prods.	79.3 90.3
D. prods.	62.4	59.7	Ir. & st.	77.8 64.8
Rice	55.1	65.2	Leather	68.0 77.6

A. de P.=article de Paris. D. prods.=dairy products. Chem. p.=chemical products. Metal w.=metal wares. Ir. & St.=iron and steel. Leather=leather goods.

Principal countries of origin and destination, with value of trade for two years, in millions of francs are shown in the table on the following page; and in the notes below the table will be found figures for 1910 for the most important of these.

	Imports		Exports	
	1908	1909	1908	1909
Gr. Brita.....	793.9	887.5	1,183.3	1,265.8
U. States b.....	557.1	727.7	314.7	473.8
Germany c.....	607.5	666.1	617.1	725.9
Belgium d.....	409.5	439.1	749.2	903.0
Algeria e.....	273.1	272.0	399.0	397.1
Br. India.....	263.4	290.3	18.0	17.4
Argentina.....	257.8	301.7	111.6	128.3
Russia.....	239.6	287.7	72.8	63.1
Spain.....	148.7	179.6	128.2	124.4
Italy.....	164.8	164.8	242.1	292.9
China.....	138.0	188.6	9.7	13.7
Switzerland f.....	115.3	122.2	314.9	343.5
Brazil.....	114.6	134.4	48.1	55.7
Chile.....	103.4	75.5	20.4	22.8
Netherlands.....	100.2	77.7	56.0	64.2
Turkey.....	88.4	98.6	64.5	68.3
Indo-China.....	82.3	98.8	70.1	71.7
Aus.-Hun.....	70.3	71.5	42.4	43.8

a In 1910, 930,300,000 and 1,275,100,000. b 614,120,000 and 456,000,000. c 860,500,000 and 804,000,000. d 469,700,000 and 1,003,700,000. e 447,000,000 and 438,900,000. f 138,910,000 and 385,500,000.

SHIPPING. The shipping in 1909 and 1910 is shown below (exclusive of coasting) for two years (E.=entered, C.=cleared):

	French		Foreign		Total	
	No.	Tons	No.	Tons	No.	1000 tons
1909 E						
8,029	6,704,648	21,869	21,507,378	29,398	28,212	
1909 C						
8,223	6,796,974	22,009	21,739,130	30,232	28,536	
1910 E						
.....	6,728,031	.....	21,906,196	27,649	28,634	
1910 C						
.....	6,246,234	.....	15,631,219	20,842	21,877	

COMMUNICATIONS. Railways (December 31, 1910): 40,632 kilometers of main, 8900 of local lines. The railways are nearly all conceded for a term of years, reverting ultimately to the state. Progress was made on the underground railways at Paris during the year, and these great projects were satisfactorily nearing completion. Work was being done on the last section of the "Metropolitaine," which involved two crossings under the Seine, while the section between the Pont de la Concorde and the Opéra was completed. The extension of the Nord-Sud line to St. Ouen and the Clichy Gate was under way. An important engineering project was the Jaca-Oléron line, connecting France and Spain, 57 miles in length. This line included a long tunnel and was being built over mountainous country. Another railway from France to Spain was that between St. Giron and Lérida. This also is a mountainous line, and includes 78 tunnels and 68 viaducts. Railway construction along the southern frontier was very active in France, and the electric line from San Sebastián to Hendaye was nearing completion. Length of telegraph lines (1909), 178,878 kilometers; wires, 659,323; telephone lines, 129,036; wires, 1,188,330. Post offices, 13,631. Post office receipts (1909), 339,472,748 francs; expenses (posts and telegraphs), 303,763,504; telegraph receipts, 61,854,350.

FINANCE. The franc (1 franc = 19.3 cents) is the monetary unit. Financial statistics are given in francs as follows (1911 estimate):

	1909	1910	1911
Revenue	.4,140,912,961	4,233,254,003	4,384,072,839
Expend.	.4,186,090,463	4,222,949,817	4,386,462,181

Details of the 1911 budget (July 13, 1911):

Revenue		1000 fr.	Expenditure		1000 fr.
Direct taxes ..	595,897		Debt	1,278,113	
Ind. taxes:			War	938,162	
Registration ..	786,758		Adm'tion†	585,009	
Licenses, etc.	623,955		Navy	416,431	
Customs	559,212		Instruction, etc.	310,218	
Stamps	240,881		Public Works..	278,601	
Sugar	164,548		Interior	139,819	
Personalty ..	103,520		Colonies	103,501	
Bourse	12,513		Justice	67,135	
Monopolies:			Com. & Ind....	55,708	
Matches, etc.*	566,696		Labor, etc.....	50,608	
Posts	280,618		Finance	48,747	
Tels. & tels..	95,362		Repayments ...	45,091	
Various	17,654		Agriculture	38,782	
Domains	71,633		Foreign Affairs.	20,514	
Receipts d'ordre	107,802		Salaries	20,024	
Various	103,670				
Exceptional ...	73,452				
Total	4,384,073			4,386,462	

* Matches, tobacco, and gunpowder. † Costs of administration and collection of taxes.

The foregoing table is not inclusive of a total of 659,322,170 francs (receipts and expenditures balance) for special services—railways, pensions, Legion of Honor, government printing, etc. The sum of the deficits from ordinary budgets from before 1814 to end of 1908 was 1,087,473,140 francs. The difference between actual revenue and actual expenditure is still greater.

Capital of national debt (exclusive of annuities), January 1, 1910, 31,432,175,630 francs; floating debt, 1,432,180,600.

NAVY. The number and displacement of war ships of 1000 tons and over, and of torpedo craft of 50 tons and over, built and building, in 1911, were placed at 424, of 741,425 aggregate tons, detailed as follows: 4 dreadnoughts (all building), of 92,368 tons; 20 first-class battleships, of 286,005 tons; 2 second-class battleships, of 15,400; 22 armored cruisers, of 211,070; 3 cruisers (over 6000 tons), of 24,022; 5 cruisers (6000 to 3000 tons), of 21,250; 2 cruisers (3000 to 1000 tons), 4706; 72 torpedo-boat destroyers, of 26,782 (and 13 of 9170 building); 200 torpedo boats of 19,166; 66 submarines, of 22,304 (and 15 of 9182 building). Not included in the foregoing are vessels over 20 years old, unless reconstructed and armed since 1905; transports, colliers, repair ships, converted merchant vessels, or other auxiliaries; vessels under 1000 tons, except torpedo craft; torpedo craft under 50 tons.

Commissioned in 1911 were five of the six battleships of the *Danton* class (each, 18,029 tons), authorized 1906, laid down 1907-8, launched 1909. The remaining vessel (the *Vergniaud*) will be completed in 1912. The *Jean Bart* and the *Courbet* were launched in September, 1911, to be completed 1913; the *France* and the *Paris* are expected to be completed in 1914. The armored cruiser *Waldeck Rousseau* was finished in 1911. The submarines *Gustave Zédé* and *Néréide* were begun in 1911. The battleship *Liberté* was destroyed by fire and explosion, September 25, 1911, in Toulon harbor (see *History*, paragraph "The Toulon Disaster"), and the minister of marine has asked for funds for a new battleship to replace her in addition to those already authorized.

Naval expenditure in 1911, 416,431,000 francs. Personnel (1911), 58,649 officers and men.

ARMY. The French army is recruited by conscription, each citizen being liable for service

between the ages of 20 and 45, serving 2 years in the active army, 11 years in the reserve, 6 years in the territorial army, and 6 years in its reserve. The army was organized in 20 army corps, exclusive of the garrison of Paris and the army in Tunis, the headquarters of the various corps being as follows: Lille, Amiens, Rouen, Le Mans, Orléans, Châlons-sur-Marne, Besançon, Bourges, Tours, Rennes, Nantes, Limoges, Clermont-Ferrand, Lyons, Marseilles, Montpellier, Toulouse, Bordeaux, Algiers, Nancy. The total effective strength on January 1, 1911, was 555,045 men with the colors, and 40,625 non-combatants.

The number of recruits enrolled in October, 1910, was 224,000, instead of 202,000 as had been estimated on the basis of the birth statistics. The discrepancy was due to the fact that the survivals to the military age have risen from 67 per cent. to 70 per cent. of the males born. The total enrolled was, however, 5850 less than in 1909, owing to the decline of the birth rate, which had fallen since 1905 from 850,000 to 700,000, 393,000 of the latter number being males. On account of the stricter enforcement of the medical regulations 2400 more conscripts were rejected in 1910 than in 1909.

The experiment of sending Senegalese, and other black regiments, to Algeria was successful, and it was thought that soon it might be possible to release the Algerian troops for service in Europe. As regards mobilization of the French army, the position was considered satisfactory. By mobilizing eleven classes of the reserve and the two classes of the active forces, a first line army of 2,500,000 men could be placed in the field, which would be equivalent to the Germany army with its two active classes, its reservists of from 22 to 28 years of age, and its Landwehr of from 28 to 32 years.

The corps cavalry was to be reduced from a brigade to a regiment per corps, and all non-corps cavalry was to be formed into cavalry divisions. A new law provided 60 regiments for the cavalry divisions instead of the 36 which had hitherto been available. Each cavalry division was to be increased by a battalion of 350 cyclists. The reorganization of the artillery continued, a main object being the separating of establishments designed to provide material and munitions for the field army from bureaus organized to carry out similar functions for the fortresses. The "mignonette" service uniform introduced experimentally in 1910 at a cost of some 356,000 francs was abandoned during the year. A new uniform dress of gray-green corduroy was to be issued experimentally during 1912.

GOVERNMENT. The executive authority is vested in a president, elected for seven years by the National Assembly; he is assisted by a cabinet responsible to the Chamber. The legislative body is the National Assembly, composed of a senate (300 members elected indirectly for nine years) and a chamber of deputies (584 members, elected by universal suffrage for four years). President Armand Fallières (1911) was born November 6, 1841; elected January 17, 1906. The cabinet as constituted June 27, 1911, was as follows: President of the Council and Minister of the Interior and of Worship, Joseph Caillaux; Justice, Jean Cruppi; Foreign Affairs, Justin Germain Casimir de Selves; Finance, Louis Lucien Klotz; War, Adolphe Messimy; Marine, Théophile Delcassé; Instruc-

tion and Fine Arts, Jules Joseph Théodore Steeg; Public Works, M. Aугagneur; Commerce and Industry, M. Couyba; Agriculture, Jules Pams; Colonies, M. Lebrun; Labor, René Renoult.

HISTORY

FOREIGN AFFAIRS: THE RUSSIAN ALLIANCE. The Potsdam meeting between the czar and the kaiser and their respective foreign ministers in the autumn of 1910 was much discussed during the early part of 1911 in connection with its bearing on the Russo-French Alliance. As a result of the meeting a convention concerning Persian railways was formed between Russia and Germany on January 13 and signed on August 19. Through an indiscretion of some one in the diplomatic service, the Russian note which formulated the decisions of the conference and was transmitted to Berlin, was published in a London newspaper. Although the German government announced that the negotiations were still going on and that the newspaper version of the note was not authentic, the main points of the agreement were at this time anticipated as appeared when the official version became known later. For an account of the terms, see *GERMANY*, paragraphs on *History*. Despite official assurances that this convention did not menace existing alliances, but was, in fact, a pledge of peace in Persia, there was much adverse comment upon it in the French press. The chief objection raised was that Russia, which had hitherto opposed the Bagdad line, now withdrew its opposition without consulting the cabinets of Paris and London. Russia had been accustomed to act in accord with France and Great Britain on the question of the Bagdad Railway. But now she consented to concessions greatly to the advantage of Germany without apprising the other two members of the Triple Entente. This was regarded as marking the beginning of the dissolution of the understanding between Great Britain, France, and Russia. The matter came up in the French Chamber on January 17 when the budget of the Foreign Office was under discussion, and M. Pichon in reply to questions in regard to it declared that the Potsdam convention did not affect the Russo-French Alliance. He declared that it was "not the business of any country but Turkey to say that this or that line of railway shall or shall not be constructed in the Ottoman empire." Nevertheless the feeling prevailed that this Russo-German agreement foreshadowed the end of French and Russian coöperation.

FRANCE AND MOROCCO. The most absorbing topic in international politics throughout the year was the policy of France in Morocco. The French expedition to Fez, the sending of a German gunboat to Agadir, and the negotiations between France and Germany resulting in a new agreement concerning Morocco, after a period of anxiety and suspense during which it was feared that war might break out between the two countries or between England and Germany, are described under *MOROCCO*, paragraphs on *History*. Here the Moroccan affair is considered only with reference to the internal politics of France. In the course of the discussion of the budget for Foreign Affairs in the middle of January, M. Pichon declared the French-Moroccan policy to be merely one of "pacific penetration and economic progress." On this

occasion, as on many others both before and afterwards, the Socialists assailed the government for its aggressive course. M. Jaures, appealing to the principles of international peace, protested against the military occupation of Morocco, and deprecated military and financial alliances. Early in March, following interpellations of the new ministry, he denounced the banks for exploiting the Moroccan loan for profit, and demanded that the sultan's hands be strengthened, and that no irregular military action be taken. On the other hand, the great majority in the Chamber and French public opinion generally were favorable to a vigorous Moroccan policy and against any backward step. It was feared that the new foreign minister, M. Cruppi, might not maintain the policy of M. Pichon. He assured the Chamber, however, that the government would proceed on the same lines, consolidating the results of French military expeditions and political actions. He announced the government's programmes as follows: (1) To increase by about 2000 men the force of occupation in Shawia, which then numbered only 5000, and were scattered over a wide area; (2) to supply Mulai Hafid with the means of punishing the Zaers for their recent aggressions, in accordance with his promise which the government had accepted; (3) to authorize a loan of 15,000,000 fr. for the payment of debts incurred prior to June 30, 1909, and a loan of 43,000,000 fr. for public works, namely the building of ports at Tangier and Casablanca, and of a railway from Tangier to Alcázar. He said the reinforcement of the troops was not in contemplation of a military expedition, but on the contrary was aimed at making such an expedition unnecessary, that France and Spain would continue in cordial coöperation, and finally, that the financial arrangements tended to promote the economic interests of Morocco, relieve the sultan of burdens, and permit the carrying forward of important works. Confidence was voted by 365 against 74. This announcement was met with disfavor in Spain where the railway was disapproved and the French government blamed for not keeping Spain informed of the negotiations concerning a loan.

The council of ministers held on March 13 decided in favor of reinforcing the French army at Casablanca and of a financial arrangement with the Maghzen which would supply the sultan with the means of maintaining a serviceable army of 5000 men and keep up the police in the ports. The Morocco state bank was to issue two financial loans and France was to renounce for the time being the instalments of the war indemnity. It was also decided to require the sultan promptly to carry out his undertaking to punish the Zaers. In the course of an address on the government's foreign policy on April 7, the foreign minister announced that the Shawia region was tranquil. The difficulties with the tribesmen around Fez were, however, serious, and the government had adopted effective measures for helping the Maghzen to pay the troops and keep them in the field. If the situation became more grave the government would take steps to insure the safety of the Europeans in the region. Later came the announcement that the troubles at Fez had become so serious that the government had prepared for measures to restore order in the region, and had entered into communication with the other powers on

the subject. The Spanish government declared that Spain would coöperate with France in the spirit of existing treaties. Then followed the French military expedition to Fez, with all the resulting complications, which will be found described in the article MOROCCO.

OTHER FOREIGN AFFAIRS. Both M. Pichon and his successor in foreign affairs, M. Cruppi, insisted that the foreign policy of France should be one of energy and decision. A strong army and navy was held to be indispensable if France was to hold the place to which she was entitled in international affairs. In an address on April 7, the foreign secretary, in order to allay the fears in regard to the effect of the Potsdam convention on the Franco-Russian Alliance, declared that that alliance was unimpaired and continued to be the basis of French policy. He said further that the *entente cordiale* with Great Britain also continued firm, that relations with Spain were as heretofore friendly, and that in regard to Turkey, the French government continued to view with sympathy the liberal institutions of the new régime. Later, however, strong feeling developed against Spain for her course in sending an expedition to Alcázar (see MOROCCO, paragraphs on *History*). The course of events during the Moroccan negotiations tended to maintain the good feeling between France and Great Britain, which continued unabated throughout the year. On August 19 a new commercial and navigation agreement between France and Japan was signed in Paris. By this France agreed to apply her minimum tariff to Japanese products, and Japan conceded tariff reduction on fifteen of the chief French exports.

THE FALL OF THE BRIAND MINISTRY. The Chambers reopened on January 10, and from that date to the fall of the ministry on February 27 a large part of the time of the deputies was taken up in the discussion of the budget. The important measures before Parliament, according to M. Briand, were, defense of the lay schools, the statute of functionaries, measures of social progress and social safety, and the naval programme. He urged that the budget discussion be as brief as possible in order to take up these matters. Important debates took place on the foreign policy of the government, especially as regards the Potsdam meeting and Morocco, on the status of syndicalism, on the wine growers' riots, and other matters which will be referred to in later paragraphs. In January and February the Chamber discussed and voted important sections of the budget, including in the railway budget a provision for financial regulation of railways under separate administration, subject to the direct authority of the ministry. On February 6 the Chamber voted a bill guaranteeing the origin of the wines of Champagne, which was carried in the Senate on February 10. The introduction of a bill by M. Delcassé on February 21, providing for two additional dreadnoughts of 23,500 tons each, led to a discussion in the course of which the Socialists demanded that the government take the initiative in bringing about an international agreement for disarmament, to which the foreign secretary, M. Pichon, replied that although such efforts had been fruitless in the past, the government would accept the proposal of another deputy who had asked it to do its best toward making disarmament a practical question at The Hague Conference. It was soon evident that



Photograph by Paul Thompson, N. Y.

ANTOINE ERNEST MONIS



Courtesy of the *Review of Reviews*

JOSEPH CAILLAUX

TWO FRENCH PREMIERS OF 1911

the government was losing its hold on the majority, especially as regards the religious question. It had been repeatedly attacked on the one hand by the Right for its course in the church difficulties, and on the other hand was attacked by the Radical Socialists for laxity in enforcing the church laws of 1901 and 1904. The Extreme Left were, moreover, resentful of its vigorous action in putting down the great railway strike of 1910. In a debate on the congregations on February 25, M. Malvy, leader of the Radical Socialists, accused the government of remissness as to the church laws, and the vote of confidence gave a majority of only sixteen to the ministry. On this revelation of its weakness, the ministry resigned (February 27), the premier addressing a letter to the president saying that, though the government was assured of a majority, it had met with a systematic opposition which prevented it from carrying out its programme of church legislation and social reform. During the session an attempt had been made to assassinate M. Briand in the Chamber. At the evening session of January 17, the assailant, named Jizolme, fired two shots, one of which passed very near the premier. The assassin was arrested, and on appearance in court was examined by alienists and declared to be mentally unbalanced. The Senate unanimously passed a resolution of sympathy for M. Briand and congratulation on his escape.

THE NEW MINISTRY. M. Monis was charged with the formation of the cabinet. The premier took for himself the portfolio of the interior, and chose his colleagues all from the Radical bloc: M. Perrier, justice; M. Cruppi, foreign affairs; M. Berteaux, war; M. Delcassé, navy; M. Caillaux, finance; M. Steeg, public instruction; M. Dumont, public works; M. Massé, commerce; M. Pams, agriculture; and M. Boncour, labor. M. Malvy, who had led in the attack on the preceding ministry, was made under secretary of justice and worship, thus giving the impression that the new government intended to take more drastic action on the church question. On March 6 M. Monis met the Chamber and outlined the government programme. It comprised such policies as would, he thought, be supported by the Republican majority. Its chief features were: Reform of the system of direct taxes; secondary technical and industrial education; credit for the small trade and industry; credit for the workmen; electoral reform based on the plan proposed by the commission. The income tax was to be the first measure before the Chamber. He urged that the work of Parliament be devoted to the following points in order: The budget, measures for suppressing sabotage on the railways; measures for making pensions retroactive and concerning collective contracts, and methods of conciliation and arbitration. As to the railway employees who had been dismissed for taking part in the strikes of 1910, he announced that in the interest of industrial peace the state railroads would restore them to employment and that the other companies would be asked to do the same, but no man would be reinstated who had been convicted of an act of violence. He promised that the law of workmen's pensions should go into effect on July 3, 1911, and that the government would apply, without violence on the one hand or laxity on the other, the laws concerning the congregations, the separation of the church and state, and the lay schools. He assured the

Chamber that the government would proceed to the reform of the justices of the peace. As to foreign affairs, the government promised to continue the policy of its predecessor. A vote of confidence was taken and carried by 309 to 114.

On the whole, the new cabinet tended toward the Left of the Radical party. The change that attracted the most attention was the appointment of M. Cruppi as foreign minister, in place of M. Pichon. The latter had administered the office of foreign affairs since October, 1906, and it seemed unfortunate that the foreign policy of France should be entrusted to new hands. The chief credit of M. Pichon's administration was his discreet method of negotiating with Germany, concerning Morocco, which had resulted in giving France a free hand and relieving her from embarrassment. Latterly he had been criticised for the consequences of the Potsdam interview, concerning which an account is given in a separate paragraph. The portfolio was offered to and refused by three men in turn before it was finally accepted by M. Cruppi. The difficulties before the new foreign secretary were very serious, and the public looked forward to his course with some apprehension. Another important feature of the new cabinet was the inclusion of M. Delcassé as minister of marine. This indicated that the latter's policy as regards the naval programme had completely triumphed.

The bill authorizing the laying down of the two dreadnoughts in 1911 was passed on March 7. In the following week all the clauses of the navy budget were voted. On March 15 M. Monis declared before the commission on universal suffrage that he favored the principle of *scrutin de liste* and of proportional representation, with certain reservations, and urged that Parliament take up the matter as soon as the budget was out of the way. On March 20 the bill for retroactive pensions among railway employees was passed after some sharp criticism on the ground that it laid too heavy a burden on the railway companies. The new ministry was soon called into question as to its attitude toward the religious schools: Early in April a deputy inquired into the failure of the government to apply the separation laws to certain schools in the department of Gironde. After explaining the matter the government received a vote of confidence in its intention to carry out with firmness the policy of secularizing the schools.

THE DISTURBANCES IN THE WINE-GROWING DISTRICTS. On January 11, a mob broke into the cellars of some wine merchants at Haut-villiers, and destroyed thousands of gallons of champagne, and other disturbances followed during the month. To meet the champagne issue a bill was introduced for the protection of the champagne and on February 6 the main clauses were adopted by the Chamber of Deputies. The general effect of the law was to distinguish between the high grade of native wine and other products not strictly local, but hitherto classed as champagne. It delimited the champagne district according to the demands of wine-growers in the region about Rheims and Epernay. During March disturbances occurred in the Aube district among wine-growers who resented the government's refusal to include their region within the "delimited" champagne area; and in the latter part of the month turbulent mobs of vineyard laborers came into collision with the police. In Parliament resolutions and motions were offered concerning the

abrogation of the law of 1908, delimiting the wine-growing regions and the amendment or suspension of the Adulteration law of 1905; and on April 11 the Senate voted to abolish the territorial delimitation. Thereupon counter-demonstrations were made against the Aubeis in the Marne region. Great quantities of wine were destroyed and a number of houses were burned. It was necessary to send government troops into the district. In the suburbs of Epernay 12,000 vine dressers swarmed over the vineyards and broke down the vines, destroying completely some of the plantations. They then invaded the storehouses and destroyed their contents. Early in May the troops in the champagne district reached the number of 12,000. The Council of State decided to distinguish the wines of Marne from those into which grape juice from other regions entered. Announcement of this decision, early in June, led to a revival of the agitation in the Aube district, where processions and bonfires were held and where mobs assembled and had to be dispersed by the soldiers. Appeal was made by the malcontents to Parliament. Soon rumors were afloat that the cabinet could not hold out, and on June 14, at a meeting of the Socialistic Radical party, the opinion was expressed that the cabinet would have to resign, the government being thought unable to prepare an adequate defense in the coming debate on the champagne question. A number of arrests were made after the champagne riots of April, and the prisoners came up for trial in the middle of August. Of the thirty-three who were accused, twenty-seven were acquitted and six condemned to varying sentences, the longest being four years and the shortest one month.

THE FALL OF THE MONIS MINISTRY. On May 2 M. Berteaux, the minister of war, was killed, and the premier, M. Monis, was injured by the flight of an aeroplane, as the competitors in the Madrid-Paris aviation race were starting at Issy-les-Moulineaux. M. Berteaux's death was a serious loss to the cabinet. It was believed that his choice as a member of the ministry was the reason why it had been formed so easily and quickly, and he was regarded as the strongest of the ministers. He had been especially energetic and skillful in equipping troops and organizing the campaign in Morocco. During the spring and early summer the disturbances in the wine-growing district continued and there was much discussion of the subject in Parliament. As it went on, it became evident that the government was losing its supporters on the champagne question. It was further weakened by the hostility of a large number of the ministerial majority to the Electoral Reform bill, which sought to introduce the *scrutin de liste*, with proportional representation. The final crisis occurred, however, in connection with an altogether different question, namely, that concerning the command of the army in time of war. The government desired the appointment of a generalissimo over all the French armies, but this was opposed by the Socialists and others as a measure of militarism. On June 30 the government was defeated on its motion by twenty-four votes and tendered its resignation. A new cabinet was formed under M. Caillaux as premier. He also held the portfolio of the interior. M. Delcassé continued in the new government as minister of marine.

THE DISMISSED RAILWAY EMPLOYEES. A large

number of employees were dismissed for participating in the great railway strike of 1910. There was a strong public opinion in favor of clemency toward the dismissed railway men, and it was urged that they should be reinstated. Early in the year the ministry declared that it would try to have the men reinstated. A number of them were reemployed on the Western Railway and the company declared that there had been no relaxation of discipline or falling off in the quality of the work or any other bad result from their reinstatement. Nevertheless the government's efforts to secure the reemployment of the strikers were not successful and the Socialists, who had made this their chief demand, were driven to desperation toward the close of the session at the thought of facing their constituents without having gained this end. Early in July a riot occurred in the Chamber in the course of a violent attack upon the premier by several Socialist deputies for the government's course in regard to the railway strikers. M. Caillaux declared that he would act as far in the direction of humanity as was consistent with the public interests, but would not yield to pressure. A fracas took place between the Socialists and the Radicals and the sitting was adjourned.

THE TOULON DISASTER. At six o'clock on the morning of September 25, the French battleship *Liberté*, a vessel of 14,650 tons, was blown up in the harbor of Toulon, causing the death of 226 officers and men and wounding 184. The accident was thought to be due to a short circuit or to spontaneous combustion in the magazines. A muffled explosion was heard at about half-past five, soon followed by three others. Wreckage of all kinds was hurled into the water, the vessel was broken in two and sank. A controversy immediately began as to the causes of the disaster, and a court of inquiry was appointed to investigate it. The *Liberté* was built under the programme of 1900, and was a sister vessel of the *Patrie*, *Democratie*, and *Justice*. The commission of inquiry reported the latter part of October that it discovered no sign of foul play or incendiarism, but believed that the disaster began with the ignition of a cartridge in one of the magazines. It found that the requirements as to the keeping of powder were duly observed, but recommended improvements.

FOOD RIOTS. The rise in the price of food caused serious disturbances in northern France during the last week of August and the first week of September. The General Federation of Labor was active in exciting the crowds by incendiary speeches, and M. Yvetot took an active part in stirring up the discontent. The rise in price for the necessities of life, though general throughout the world, was especially marked in France owing to the seasons of drought. The movement began with a boycott on the part of thousands of housewives of the local markets in the towns of northern France. In spite of the physical causes of the rise in the price of food, a campaign was waged against the produce brokers. For many months the Socialists and revolutionary agitators had laid the blame for the rise in price on these middlemen. The General Confederation of Labor had made it its policy to cry out against dear food and high rents. The speeches of M. Yvetot added to the excitement in the disturbed region. Bands of women and members of the unemployed and dis-

orderly element in the towns gathered, and in some cases plundered the shops. A council of the ministers was held on the subject and it was decided to allow the communes to take part in coöperative butchers' and bakers' establishments with a view to regulating the supply of the necessaries of life. A scheme was also approved for the provision of cheap housing. Certain other measures were adopted for relief, for example, steps to promote the importation of colonial cattle, the revision of the embargo on foreign cattle, and the suspension of duties on cattle feed. A commission was appointed to inquire into the question of high food prices and lay the report before the council. The report was submitted on September 7. It attributed the peculiar conditions in France to the drought and to the failure of crops, although it found that the high food prices were a general phenomenon. The council decided upon the measures for importing more cattle, above mentioned, and in addition on certain other plans of relief. The General Confederation of Labor now turned its attention to Paris and began an agitation for lower rents. For a time there was fear of a general strike on behalf of rent-payers.

THE BUDGET. The 1911 budget was voted by both houses of Parliament on July 12. In the Chamber the vote was 458 to 88. Its new features were: First, national, provision for developing the navy and strengthening the frontier defenses; second, industrial, concerning the financial and administrative status of the state railways; and third, social, providing for the service of the new Workmen's Pension law, which came into effect in June. The budget draft for 1912, submitted to the council of ministers in September, showed a considerable increase over the previous year, of which the greater part was due to social legislation and to the requirements of national defense. To meet the deficit there was to be a duty on gas and electric light, a readjustment of the hallmark duty on precious metals, a 5 per cent. tax on Bourse transactions, and the repayment by the Eastern Railway of a larger part advanced by the state.

COLONIAL ADMINISTRATION. In a debate on the estimates for the colonies, the bureaucratic administration was denounced and an increased decentralization was demanded. The minister for the colonies, admitting that some of the charges were well founded, proposed a plan of reform especially in the judicial administration. Among its features was the requirement that the French colonial officials should have a working knowledge of the language of each country. Several features of the colonial administration were strongly condemned. Among other charges it was said that money was being shamefully wasted and that the ministry for the colonies was negligent in its supervision, that a fourth of the officials could readily be spared, and that a confused irrational system of financial control prevailed.

OTHER FEATURES OF THE YEAR. During 1911 instances of sabotage were very numerous, especially on the railways, where many attempts were made to destroy trains and blow up buildings. In March a new Liberal group was formed under the title the Republican Union by some forty of the Progressives and a few deserters from the Democratic Left. Its programme was to be the development of public

liberties and the promoting of social reforms. M. Leblond was named as the chief of the new party. In June, M. Duez, who had been conspicuously before the public in 1910 for misappropriation of funds as liquidator of the religious orders, was found guilty of embezzlement and sentenced to twelve years' penal servitude. A change in the military administration was announced at the beginning of August. The command of the principal groups of armies in case of war was in future vested in an officer to be styled the chief of the general staff of the army, and the office of vice-president of the army council, which had hitherto carried with it the command, was abolished. The general purpose of this change was to secure a greater degree of unity in the command. General Joffre became the new chief of staff. The programme announced by the navy committee toward the end of August indicated in general the purpose to restore to France her position as the world's second greater sea-power. It provided for an effective fleet, which should be ready in 1920, of 28 battleships of the larger class, 10 scout cruisers, 52 ocean-going torpedo boats, 94 submarines, and 10 vessels for oversea service. For an account of the May Day demonstrations see **SOCIALISM**. Pursuant to a law passed by the Senate on February 10, Greenwich time was adopted for France and Algeria at midnight, March 10-11. In July President Fallières visited Amsterdam at the invitation of the queen of the Netherlands. A general arbitration treaty between France and the United States was signed at Washington on August 2, and was awaiting the action of the Senate toward the close of the year. (See **UNITED STATES**, and **ARBITRATION**, **INTERNATIONAL**.) In November a bill was introduced for the placing of the great concessionaire railway companies under more direct government control, and providing for more complete regulation of the administration of their personnel. The officers of the railway companies protested, saying that if the proposals were carried out they would urge rather the taking over of the railways by the state altogether.

FRANCE (SHIP). See **BATTLESHIPS**.

FRANCO-RUSSIAN ALLIANCE. See **FRANCE**.

FRANCIS, CHARLES SPENCER. An American public official, former ambassador to Austria-Hungary, died December 1, 1911. He was born in Troy, N. Y., in 1853 and graduated from Cornell University in 1877. He entered the printing office of the *Troy Times*, of which his father was founder and owner. After serving as city editor and managing editor, he became, on the death of his father in 1897, sole owner and editor of this paper. His diplomatic service began as secretary to his father, who for three years was United States ambassador to Greece. From 1900 to 1902 he was minister to Greece, Rumania, and Serbia, and from 1906 to 1910 was ambassador to Austria-Hungary. He was an officer and director in many financial institutions and was twice elected by the legislature regent of the University of New York. He was vice-president of the New York Society for the Preservation of Science and Historic Places and Objects. He was a member of several patriotic societies.

FRASER, Mrs. HUGH. See **LITERATURE**.

ENGLISH AND AMERICAN, General Biography.

FREE BAPTISTS. See **BAPTISTS**, **FREE**.

FREEMAN, JOHN CHARLES. An American scholar and educator, died April 10, 1911. He was born at Lisle, N. Y., in 1842 and graduated from the University of Michigan, in 1860. He served throughout the Civil War and in 1868 became assistant professor of Greek in the University of Chicago. He remained in this position until 1874 when he became professor of Latin in the same university. From 1879 until the time of his death he was professor of English in the University of Wisconsin. In 1900, he was United States consul at Copenhagen. He edited Xenophon's *Memorabilia* and the *Dialogues of Lucian* and was the author of a *History of American Literature*. He contributed articles on commerce and finance to the United States Consular Reports and on literature and politics to various magazines and journals. He was well known as a speaker on political and lyceum platforms.

FRÉMONT, JOHN CHARLES. A rear-admiral of the United States navy, died March 7, 1911. He was born in San Francisco in 1849, son of Maj.-Gen. John C. Frémont, the noted explorer and soldier. He graduated from the United States Naval Academy in 1872 and carried on post-graduate studies in torpedoes, electric science and ordnance. He was promoted through various grades to the rank of captain in 1906. He commanded the torpedo boat *Porter* in the Spanish-American War and was commandant of the Cavite Navy Yard, 1899 to 1901. In 1906-7 he was naval attaché in Paris and St. Petersburg. In 1908-9, he commanded the *Mississippi*. He was the author of *Government Reports on Deep Sea Soundings, Searchlights and Coast Survey*. He contributed articles to newspapers and magazines.

FRENCH EQUATORIAL AFRICA. Till 1910 known as the FRENCH CONGO. A French possession on the west coast of equatorial Africa, composed of three colonies: The Gabun Colony (120,745 sq. miles; 4,000,000 inhabitants; capital, Libreville), the Middle Congo Colony (170,255 sq. miles; 3,000,000 inhabitants; capital, Brazzaville), and the Ubangi-Shari-Chad Colony (Ubangi-Shari 154,400, Chad 223,800 sq. miles; population, 2,000,000 and 1,000,000; capital, Fort-de-Possel). Total: 669,280 sq. miles, 10,000,000 inhabitants, chiefly negroes. There are mission schools. The forests contain valuable timber, and rubber is exported. Chalcosite is mined at Mindouli; gold, copper, and iron are present. Imports (1909), 11,119,000; exports, 17,454,000. Vessels entered (1909), 72, of 147,000 tons. Ports, Loango and Libreville. A railway from Libreville to the Congo is projected. Telegraph lines, 870 miles. The general budget balanced in 1910 at 6,137,000 francs (state subvention, 600,000 francs). Debt, 1,333,000 francs. The administrator-in-chief of the Middle Congo and the lieutenant-governors of the other colonies are under the direction of the commissioner-general (1911, M. Merlin), with headquarters at Brazzaville.

KANEM (Capital, Maô), northeast of Lake Chad, is a district of the Shari region. **WADAI** (170,000 sq. miles; 2,000,000 inhabitants; capital, Abeshr), east of Kanem, is a French protectorate.

For territorial changes resulting from the Moroccan treaties of 1911, see MOROCCO. An encounter was reported on January 12 between the Senussi Sultan and French troops at Tata,

in which the latter defeated the enemy with a loss of 300 and lost eight men themselves. On June 23 Colonel Largenau, in command of the forces in the Chad region, entered Abeshr and established there a fortified post.

FRENCH ESTABLISHMENTS IN OCEANIA. A number of widely scattered islands and groups of islands in the southern Pacific; a French colony. Total estimated area, 1520 sq. miles; population, 30,563 (Polynesians, 26,994. They include the Marquesas, Tuamotu, Leeward, Gambier, and Tubuai Islands. Copra, vanilla, mother-of-pearl, raw cotton, cocoanuts, etc., are the chief products. Imports (1909), 4,612,930 francs; exports, 5,051,442. The United States furnished imports and received exports valued at 2,093,000 and 2,854,000 francs respectively. Vessels entered, 51 of 87,338 tons. Revenue and expenditure (1909), 2,410,626 and 2,213,645 francs respectively; subvention, 150,000. Governor (1911), Adrien Bonhoure.

FRENCH GULANA, or CATENNE. A French colony and penal settlement on the northeast coast of South America. Area, 34,061 sq. miles; population (1906), 39,349. Chief town and sole seaport, Cayenne, with 12,426 inhabitants. Penal population (1909), 4465 transported and undergoing reclusion; 2492 relégués; 1327 freed. Primary schools, 26, with 2614 pupils. Agriculture is undeveloped; the products are rice, corn, manioc, cacao, coffee, sugar-cane, indigo, tobacco, and gutta-percha. Placer gold-mining is the chief industry; production (1909), 127,416 oz. Export of gold (1909), 10,767,664 francs. Imports (1910), 12,213,420 francs; exports, 11,567,168. Vessels entered (1909), 225, of 55,096 tons. The local budget balanced (1910) at 3,407,000 francs. French expenditure (budget of 1911), 6,151,142 francs (5,884,000 for the penal settlement). Debt, 76,000 francs. Governor (1911), F. E. Leveque.

FRENCH GUINEA. A French colony in French West Africa (q. v.). Area, 254,020 sq. kilometres (98,077 sq. miles). Recently estimated population 1,702,957 (942 French). Capital, Konakry, with (1909) 6583 inhabitants. There were in 1909 26 official schools, with 1922 pupils; 10 private, with 276; 3902 Mussulman, with 23,777. The main products, with export values in 1909, are given as follows: Rubber, 15,384,745 francs; live animals, 1,201,315; hides, 834,765; palm kernels, 752,538; copal, 371,858; peanuts, 207,661. Total imports and exports (1909), 22,920,523 and 19,368,641 francs respectively. The Konakry-to-Niger Railway completed 94 kilometers during 1909, making the total length (December 31, 1909) 431 kilometers. Telegraph lines, 2820 kilometers; telephone, 75. Number of post and telegraph offices, 32. Revenue in 1909, 7,504,745 francs; expenditure, 6,756,115. The colony is administered by a lieutenant-governor (1911, V. T. Liotard), under the direction of the governor-general of French West Africa.

FRENCH HISTORIES. See FRENCH LITERATURE.

FRENCH INDIA. The French possessions in India consist of five separate dependencies (aggregate area, 198 sq. miles; population, 277,723). The towns are Pondichéry (the capital), Karikal, Mahé, Chandernagar, and Yanaon. Birth-rate (Pondichéry) in 1909, 37.79, death-rate 35.13 per 1000. Schools (1909), 51 primary and four colleges, with 280 teachers and 5240 pupils. Imports (1909), 9,543,000 francs

(raw cotton, seeds, and pulse); exports, 30,331,298 (cotton goods, ground nuts, oil-cakes). Vessels entered (1909), 374, of 747,629 tons; cleared 360, of 749,755 tons. Railways open (1911), 30 kilometers. The local budget (1911) balanced at 1,701,000 rupees; French expenditure, 192,000 francs. Debt, 795,963 francs. Governor (1911), P. I. A. Duprat.

FRENCH INDO-CHINA. A French dependency in southeastern Asia, made up of five states: Annam, Cambodia, Cochinchina, Tongking, and Taos (qq. v.). Aggregate area, about 309,979 sq. miles; population (1906), 16,315,063, chiefly Annamites. Capital, Hanoi (103,238 inhabitants), in Tongking. Rice, corn, pepper, silk, cotton, tea, sugar, rubber, and tobacco are grown. Mining products are coal and lignite, zinc, antimony, tin, wolfram, and gold.

Total imports (1910), 238,686,000 francs; exports, 290,547,000. Principal articles of export (1910): Rice, 106,867,000 francs; tin, 22,670,000; fish, 11,830,000; corn, 10,114,000; cotton yarn, 9,459,000; hides, 7,931,000; pepper, 3,745,000. Vessels entered (1908), 2073, of 2,110,141 tons; cleared, 1971, of 2,104,014. Railways open, 1756 kilometers (including 487 kil. in the Chinese province of Yunnan); telegraph lines 14,086 kil., wires 24,434; offices, 357. Telephone lines 524 kil., wires 3672. Post offices, 303. There are budgets for the separate states, and a common budget for Indo-China. The common budget (1911) balanced at 57,507,496 piasters. Governor-general (1911), A. Sarraut. KWANG-CHOW-WAN (q. v.) is under the governor-general of French Indo-China.

FRENCH LITERATURE. None of the recognized great French authors produced anything in 1911; one generation seems about to yield before another; again, none of the new names towers very high; the author of *Marie Claire* appears more and more as a shooting star. While the craze for memoirs seems to be, momentarily at least, on the decrease, poetry keeps on flourishing. As to novels, one may note an attempt at shifting the centre of gravity from love to all sorts of other preoccupations.

THE THEATRE. For detailed account we refer the reader as usual to the article **DRAMA**; but it is all the more imperative to devote a few words to this subject here as so many of the interesting literary events of the year centre around the stage. Authors still like to use the stage as a pulpit, and early in the year two authors picked out exactly the same plot in order to preach two directly opposed theories, and thus aroused a good deal of interest. In both plays a politician, chief magistrate of the town, has a son guilty of extremely grave misconduct. Is this father going to hand over his son to the tribunals, or shall his feelings as a father conquer those of the magistrate? Bourget, in *Le tribunal*, blames, in a father who yields to his parental love, the modern spirit of individualism; Paul-Hyacinthe Loyson (the son of the famous preacher) in *L'apôtre*, praises in the father, who himself discloses the guilt of the son and then resigns his position, the same modern spirit of individualism, which, according to him, is bound to inspire such highly moral actions. E. Fabre, so successful a few years ago with his *Ventres d'or*, has tried to put on the stage the colonial problem, and did so in a more interesting than convincing fashion. The psychological drama remains in honor with three of the acknowledged leaders of the

French stage today: Porto-Riche earned a solid success with his *Vieil homme*; Lavedan, another, with *Le goût du vice*; as to Bernstein, his *Après moi* was highly spoken of by men of letters, but had only a short run on account of personal prejudices against the author, a Semite who had incurred the wrath of the "nationalists" by his attitude toward France some years ago; the *Camelots du roi* (a sort of nickname of the royalists or nationalists) objected to his drama being played on the national stage of the Théâtre Français, *L'oiseau bleu* had not in Paris the same success it had enjoyed in America (where it was produced in the translation before being staged in the original French). Madame Rostand and her son, Maurice, made a play, *Un bon petit diable*, out of one of the children's books by Madame de Ségur; it was presented at Christmas time before *le tout Paris*. Maupassant's *Musotte* (three acts) was tried with some success and *David Copperfield* had a long run—it was, in a way, the part France took in the celebration of Dickens's centenary. Gémier (the famous director of the Théâtre Antoine) made a summer tour in France with his players, the "Théâtre National Ambulant" in an immense tent, with most elaborate scenery, taken from town to town in motor cars. J. Rouché, the director of the Théâtre des Arts, endeavored to reform staging and do away with the fad for grand and elaborate scenery which distracts the spectator's attention from the play. The play, *Les frères Karamazov*, adapted from Dostoyevski, was the great success of the season. Rouché's undertaking reminds one of similar attempts in Munich and Moscow.

POETRY. The production of poetry has not increased, but the attention paid to poets by the public has. The international inquiry on the *Vers libres* by the review *Poesia* in Milan, to which we referred in last year's article, has started the discussion afresh between conservatives or classicists and progressives or advocates of freedom in rhythm. The reaction against the freedom of the Symbolists was voiced by a review *Le loup, journal d'action d'art*; the contributors call themselves *les loups*, while their opponents are called *les lions*. The discussion at one time became so hot that both parties had to appear in court after blows had been exchanged. Ultra-modernism inspired a little treatise called *La poésie paroxyste* (by H. Maassen), a title which needs no further definition. A scientific basis for poetical expression was sought by Duhamel et Vildrac, *Notes sur la technique poétique*; and Robert de Souza in *Du rythme en français* claims for his ideas which have been expressed before, and which are moderately progressive, the support of Abbé Rousselot, in his famous studies on experimental phonetics. An interesting study on modern poetry was published in *La Revue*, 1 and 15 December, and Tancrède de Visan, in a book, *L'attitude du lyrisme contemporain*, tries to establish a connection between the more famous modern lyrists and recent philosophers, Bergson, of course, the man in fashion, among others. As to the original works, we must mention first of all a new and enlarged edition of Rostand's *Les Musardises* (very interesting as it shows the first ideas of some of the later dramas); then, among the noted poets: Regnier's *Miroir des heures*; Francis James, Vols. I. and II. of *Les Géorgiques chrétiennes*; Verhaeren, *Les*

plaines—in the series *Toute la Flandres*—all in their usual style. Sébastien Ch. Leconte's two volumes, *L'esprit qui passe* and *Le masque de fer*, were much appreciated; he has an inspiration in thought and expression reminding us much of Hugo, Leconte de Lisle, and Hérédia. Among the poets of the younger generation are Rolmer, *Chants perdus* (2e. vol.); Beaudouin, *Les deux règnes*; Vildrac, *Le livre d'amour*; Duhamel, *L'homme en tête*, Parmentier, *Par les routes humaines*. A favorite poet is Spiess, who published in 1911 *Chansons captives*. A dramatic poem in three acts, *Le cœur de Timandre*, by J. Reyne (a love of Alcibiades) and *Les suppliants* by F. Porché, of classical Greek inspiration, too, did not pass unnoticed. It is difficult to make a selection among women poets. Lucie Delarue Madrus, in *Par vents et marées*, is still a great poetess but adds no new note to her lyre; we might further quote Jeanne P. Vaissière's *Et la lumière fut* (optimistic), and Marguerite H. Rosier's *Belle qui passe*. A posthumous volume by the excellent poet Rollinat, *Les bêtes*, and another volume of Van-Bever's *Poètes du terroir* also came out.

NOVELS. To classify the innumerable novels is never an easy task. Let us first mention some which have attracted attention particularly. Marguerite Audoux's *Marie-Claire* owes surely part of its success to the fact that it was heralded by O. Mirbeau who had "discovered" Maeterlinck some twenty years ago. People had faith in his judgment. The autobiography of the author, a poor provincial girl, is told in a style concealing so much art behind its apparent simplicity and straightforwardness that many suspect the famous critic of having "corrected" the story before it appeared in book form. E. Faguet also thought he had discovered a literary genius, Emile Clermont, author of *Amour promis*; a resurrection of the romantic novel in the style of René Adolphe, or Oberman, i. e., people rendering their lives miserable by analyzing their love, understanding that autopsychology is bad, yet not resisting the temptation, and trying to love anyway and not succeeding, ending with suicide. André Gide, who had acquired his fame by writing stories of that class, issued this year *Isabelle*, a weird story of a man falling in love with a portrait in an old castle; the original of the portrait, hidden by her parents because of her sinful life, appears to the hero who thinks he sees a spectre. Maurice Maindron published another of his fine sarcastic stories, the delight of cultured readers; *Le bon Monsieur de Veraguez* is a leader in the religious wars of the sixteenth century, with no honor in the ordinary sense of the word, betraying the Protestant or the Catholic cause according to circumstances, extremely cruel, aiming at a gay life, but always acting with the most exquisite manners and tact. Romain Rolland issued another volume in the *Jean-Christophe* series (see preceding YEAB BOOKS) which was translated into English under the title of *Jean Christophe in Paris*. Ch. Morice created quite a stir with his *Il est ressuscité*; he supposes Christ coming to Paris today, and after he has aroused some interest, thanks to newspaper men, the city continues its usual life undisturbed. It is the *If Christ came to Chicago* for Paris. Another writer, E. Bauman, in *La fossiles*. A. Beaunier, in *L'homme qui a perdu* our epoch is in a bad way, and return to

Catholicism the only remedy. His pictures of the Sons of the Revolution, rotten morally and socially, have reminded some of Curel's *Les fossiles*. A. Beaunier, in *L'homme qui a perdu son moi* tells the story of a man who lost himself in science and inventions and comes back to religious faith as a basis for life.

Among the novels relating purely and simply to love-stories, the following ought perhaps to be especially remembered: E. Jaloux, already well known by previous novels, tries once more in *Eventail de crêpe* to apply the Balzacian method, to inspire himself altogether and exclusively from real life; J. Reibrach in *La maison du bonheur* tells the gloomy story of a woman who is not ill intentioned and who suffers for what she is doing when her appearance wrecks the happiness of a home; A. Boucinet, *L'amour qui dure*, the only lasting love is conjugal love; Guy Chantepleure, in *Le hasard et l'amour* shows how love that was born by chance develops at times into a solid and happy union. *Fermina Marguez*, by Valéry Larbaud, deals with children in a boarding school who all feel the early attraction toward the other sex; one day the girl who gives the title to the book passes among them; she is the sister of one of the pupils; and the various expressions of love, according to the various natures of the boys, have been much admired, Francis de Miomandre in *L'ingenu* tells in his skeptical and light vein the story of a young man without aim in life, who loves various women at haphazard and for all sorts of reasons, finally finding one that will mean real happiness to him (the idea of Flaubert's *Education sentimentale*); René Vincent, in *Les amours imaginaires*, mocks the artificial way of loving in people trying to imitate novel-heroes. Two authors were tempted by the analysis of the feelings of the sick, Louis de Robert, whose *Roman du malade* was rewarded with the "Prix de la vie heureuse," pictures the sufferings of a young invalid; he finds comfort in the company of a charming and cheerful girl, but sees that she loves another, and then he buries within himself his sorrow. Louis Lefebvre in *La maison vide* makes up another case; a man, married and a father is told that his days are numbered; a cancer is making rapid progress; after a hard struggle he conquers himself and uses in a beautiful effort every minute that is left him to inspire courage and love in his two beloved ones. There is a long series of novels depicting provincial life, more even than last year. The most widely discussed probably is *La maîtresse servante* by Jérôme and Jean Tharaud; a young "hobereau" from Limousin, who has been studying in Paris, brings home his mistress to marry her; the mother manages the situation very delicately, and makes the girl her servant; the son gets tired of her, marries elsewhere, while the girl is taken care of by the mother. About the same idea, picture of the life of former nobility in the provinces—only here we are in Brittany—inspires A. de Chateaubriant; his *M. des Lourdines* got the Prix Goncourt this year. A third provincial novel that was particularly successful is *Juste Lobel, Alsacien*, by A. Lichtenberger; the hero, an Alsatian living in Paris, boasts of humanitarian ideas and cosmopolitanism; later he yields to life and sees that he must throw overboard mere theories. We have not space enough to do more

than mention *Le Braz, Ames d'occident* (Brittany); Bodin, *Le pays des bandes fleuries* (Saintonge); Davignon, *L'Ardennaise*; Léon Lafage, *Par aventure* (which to tell the truth has a Parisian intrigue, but on a beautiful background of Provence); and Andrée et Jean Violli's *Puycerrampion*, which besides being a Provençal story, has a particularly picturesque and taking hero, and is written by husband and wife, thus making a new combination of authors than the one we are accustomed to of "brothers" Goncourt, Margueritte, Rosny, Tharaud, etc. A few novels, without being exactly provincial novels because the scenery is not in any special place or province, but which could be called peasant novels, are interesting, thus: G. Maurière, *La politique à Saint Genoul* (realistic and satirical); P. Harel, *Hobereaux et Villageois* (the artful but prosperous and gay peasant); E. Guillaumin, *Baptiste et sa femme* (the miseries of the peasant when trying to live the modern life of a city for which he is not made). The events in Morocco have inspired two colonial novels, e. g., P. Adam, *La ville inconnue*, and R. Randan, *Les Algériens*, both enthusiastic about the life of the colonizing soldier; the first attracted much attention owing to the fame of the author. Good exotic novels are e. g., P. Reboux, *La petite Papacoda*, very vivid picture of the Neapolitan life of a petit bourgeois; R. G. Charles, *Monsieur Charmeret en Italie* uses the form of novel to relieve the dryness of travel account; P. Adam, in his *Rail du Sauveur* tries an American novel where he shows combined the two opposite dispositions of business and mysticism; the idea is good but the author by a silly plot and story once more shows how superficially, after all, he has observed America. J. H. Rosny gives us a new sample of his suggestive and powerful prehistoric novels, *La guerre de feu, roman des âges farouches*. Finally, three novels by themselves: Louis Pergand, *La revanche au corbeau* sets himself the difficult task of suggesting the feelings of animals by merely describing their gestures and actions; no speech, as in *La Fontaine* or *Kipling*, is allowed (very well received); G. Appolinaire, *L'héréditaire et cie* a sample of pure fancy, in the style of Hoffman or Poe, but with much cynicism; Abel Hermant, *Les renards*, a witty but uncharitable diary of Paris, perhaps unworthy of a talented pen.

Few novels by women need be mentioned this year. Love, tragic, comic, light, graceful—but always love—is their theme, and of course love is old and nothing original can be expected. Madame Delarue Madrus publishes *Tout l'amour*; M. Tinayre, *La douceur de vivre* (two women are suffering here instead of one); of less famous names we quote: M. Chaumont, *L'éveil* (the awakening of love, of course); L. Château (the mother of M. Tinayre) *La ravageuse* (about the same subject as *La rabouilleuse* by Balzac; a woman disturbs the peace of the family); then agreeable and innocent stories by Lucie Gauthey, *Le destin nous conduit*, and Jeanne Schultz, *Cinq minutes d'arrêt* (the author of *La neuvième de Colctte*). Special mention may be made, however, of C. Yver, *Le métier de roi*; Helen Vacaresco, *Le sortilege*, and Simone Bodève, *Sen mari*, reminds one of *Marie-Claire* (mentioned among the famous novels of the year); it is also the story of petty miseries in life, all the tragedy being in the everyday

events. The style is nothing (in this it differs from *Marie-Claire*) and although very tragic, one questions whether it is art. Collections of short stories were published by Bourget, *L'envers du décor* (usual style of the author); J. Giraudoux, *L'école des indifférents* (many see in this author a new and promising style); C. Mauclair, *Les Passonnés* (lovers of ideal); Ch. H. Hirsch, *Parfieu et Martin*. A valuable article by A. Charpentier, *La faillite du roman littéraire* (by which he means the novel of forty years ago, Goncourt, Zola, Daudet, etc.) in *La Grande Revue* is here recommended.

MEMOIRS AND HISTORY OF FRANCE. The mania for "mémoires" seems to have died out for a little while. Freycinet published his *Souvenirs de 1848-78*, and Jules Claretie his *Quarante ans après* (1870-1910). Among the historical works that ought to be mentioned, perhaps, are: Du Bled, *Société française du 16 au 20 siècle*, *Comédie de la société*, *Monde de l'émigration*; Loliée, *Talleyrand et la Société européenne*; and especially the *Jeanne d'Aro* by Hanotaux, which for its historic value and its deeply human qualities won general praise. The great work of Laviisse, *Histoire de France* was completed in 1911.

HISTORY OF LITERATURE AND CRITICISM. Works covering no special period: A. Thierry, *Les grandes mystifications littéraires*, mostly French mystification like Clotilde de Surville, Nodier, Mérimée; Bovet, *Lyrisme, épique, drame*, an odd attempt to revive a law of evolution of the literary genres like the one sketched in Hugo's *Préface à Cromwell*. Works according to the subject arranged chronologically: Ch. V. Langlois, *La connaissance de la nature et du monde au moyen-âge* (extremely valuable); Söderhjelm, *La nouvelle française au 15ième siècle*; A. Lefrane has a remarkable "édition définitive" of Calvin's *Institution chrétienne*; Mario Schiff publishes a very curious *Mademoiselle de Gournay*, the spiritual daughter of Montaigne, and editor of the "Essays"; a course of lectures by Cherbuliez, *l'Idéal romanesque de 1610-1816*, has been published for the first time. Abbé J. Bonnet has discovered in Russia and published *Poèmes inédits de Racine*. A posthumous work by Brunetière, *Etudes sur le 18ième siècle* (Voltaire, Encyclopédistes, etc.); D. Mornet, *La nature au 18ième siècle*; Dide J. J. Rousseau, *le protestantisme et la révolution* (very bitter); a life of Rousseau by E. Faguet; interesting unknown letters of Rousseau, published by Godet and Boy de la Tour; J. Harmand has a valuable *Madame de Genlis*, and Gaschet, a *Jeunesse de P. L. Courier*; Vailant, *Gust. Nadaud et la chanson française*; M. Sourian, *Les idées morales de Madame de Staël*; Dumoulin, *Les ancêtres d'A. de Musset*. A special study on Chateaubriand: *La vie politique de Chateaubriand* by A. Cassagne. P. de Lacretelle, *Les origines et la jeunesse de Lamartine* (1790-1812), and L. Séché, *Les amitiés de Lamartine*, both making good use of the unpublished diary of the mother of the poet. P. Berret publishes a very scholarly *Le Moyen âge dans la légende des siècles*. Great interest was shown in *Souvenirs de Maupassant* by François Tassard, his valet de chambre. The *Mercur de France* has issued a painful but valuable book, *Les derniers jours de Verlaine*. Sully Prudhomme's *Lettres à une amie* (1865-1874) came out; the friend is Amiel's wife. Criticism of contemporary authors will be found in Seillière's, *Mystiques*

de néoromantisme, and in Miomandre's *Figures d'aujourd'hui*.

VARIOUS EVENTS. Two of the poets who started the school of the "Parnassiens" died: Xavier de Ricard and Ernest d'Hervilly. Maindron the novelist's death must also be recorded. The centenary of Th. Gautier was celebrated by an unusual number of articles, unanimous in saying that full justice had not been rendered to the poet of *Emaux et Camées*. The French Academy lost during the year Henri Houssaye, the historian; the newly elected members were General Langlois, H. Roujon, Baron Denys Cochin, and H. de Régnier. Monuments were unveiled in honor of Verlaine, Servet, Madame de Sévigné, Bossuet, Bornier, etc. The Nobel prize for literature went to Maeterlinck; the Prix Goncourt to A. de Chateaubriant, that of "La Vie Heureuse" to Louis de Robert. The academy rewarded especially Peguy, the editor of *Les Cahiers de la Quinzaine*; and J. Bédier received the Prix Gaubert for his work on the *Chansons de gestes*.

Finally, the great discussion must be remembered which started among opponents and adherents of the so-called new methods in the French universities; the students complain that the dry-as-dust methods coming from Germany are imposed upon them, and want life and thought in high culture. This brought about a general debate on almost all the present programmes and of course the fate of Latin and Greek is once more doubtful. The relation of the early period of the struggle can be found in *Agathon*, *L'Esprit de la nouvelle Sorbonne*; after that reviews and newspapers must be consulted.

FRENCH PHILOLOGY. See **PHILOLOGY**, **MODERN**.

FRENCH POETRY See **FRENCH LITERATURE**.

FRENCH SOMALI COAST. A French protectorate on the Gulf of Aden. Area estimates vary from six to forty-six thousand sq. miles (Gotha estimate, 8000 sq. miles). Population, about 208,000 (Danakil and Somali races). Capital, Jibuti (about 11,000 inhabitants, of whom 500 Europeans). Imports and exports (chiefly in transit to and from Abyssinia) in 1909, 15,520,000 and 23,128,000 francs respectively. A railway (193 miles) extends from Jibuti into Abyssinia, of which eighty-one miles are in French Somali Coast. Steam vessels entered (1909) 223, of 445,322 tons; cleared 222, of 446,412 tons. The local budget (1910) balanced at 1,372,476 francs. French expenditure (1910), 561,500 francs. Governor (1911), M. Pascal.

FRENCH UNIVERSITIES. See **UNIVERSITIES AND COLLEGES**.

FRENCH WEST AFRICA. A French possession composed of the colonies of Senegal, French Guinea, the Ivory Coast, Dahomey, Upper Senegal and Niger; the territory of Mauritania, and the Military Territory of the Niger (qq. v.). Aggregate area, 3,449,590 sq. kilometers, or 1,330,887 sq. miles. Recently estimated population, 10,926,772; including 8057 French and 1070 other Europeans. Schools (government), 169, with 10,218 pupils; besides 37 private (2594 pupils) and 7316 Mussulman (54,386). Expenditure for instruction: 120,120 francs government, 926,856 francs from local budgets. The aggregate imports amounted in 1906 to 118,583,192 francs and the exports to

109,832,020. Exports of peanuts, 44,305,571 francs; rubber, 31,837,698; palm kernels, 10,263,815; palm oil, 9,344,000; gum arabic, 1,706,050; live animals, 1,677,841. Railways, 1682 kilometers. Revenue from general and local budgets in 1909 amounted to 20,524,943 francs, and expenditure to 50,021,766. France expended, mainly for military purposes, 15,007,237 francs in 1910 on French West Africa. Total of railway budgets: 7,546,608 francs receipts, 5,640,398 francs disbursements. Up to April 1, 1909, loans aggregating 135,000,000 francs were issued, of which the unpaid capital and interest amounted December 1, 1909, to 144,395,500 francs. Dakar, a fortified naval station in Senegal, is the residence of the governor-general (1911, W. Merlaud-Ponty).

FREY, FRIEDRICH HERMANN. A German lyric poet, better known under the pen-name Martin Greif, died April, 1911. He was born in 1839 at Speier and was educated at Munich. His power of expression, as well as the nobility of thought and sentiment expressed in his lyrics, entitled these to be ranked among the best modern productions of the kind in German. Among his best known productions are the drama *Hans Sachs*, which appeared under his own name, and the following, which were published under his pen-name; *Collected Poems* (1868); *Neue Lieder und Mären* (1902), and dramas, *Nero* (1877); *Mariano Falieri* (1879); *Konradin* (1889); *Francesca da Rimini* (1892); *Agnes Bernauer* (1894); *General York* (1899), and *Schiller's Demetrius* (1901).

FRIENDS, THE; or, THE SOCIETY OF FRIENDS, often called **QUAKERS**. A denomination of Christians which originated with the preaching of George Fox about 1647. There are four bodies in the United States, the so-called Orthodox, the Religious Society of Friends, to whom the name Hicksite is sometimes given by those outside the denomination, the Wilburite, and the Primitive. The difference between these bodies is chiefly in the matter of administration. The largest in point of numbers is the Orthodox, which in 1911 had 100,072 members, 830 churches, and 1302 ministers. This branch is strongest in the States of the middle West. In the United States it has fourteen yearly meetings, and in Canada, one. Thirteen of these meetings are combined in a federation known as the Five Years' Meeting. This body meets in Indianapolis in 1912. The Orthodox branch has twelve colleges under its control, the best known of which are Haverford College for men, Earlham College for men, and Bryn Mawr College for women.

The Religious Society of Friends had in 1911, 19,595 communicants, 211 churches, and 97 ministers. It has seven yearly meetings in the United States and Canada. The society has under its auspices Swarthmore College at Swarthmore, Pa. There are thirteen preparatory and twelve secondary schools in New York, New Jersey, Pennsylvania, Delaware, and Maryland. Its schools and colleges are all coeducational. The Religious Society of Friends carries on active philanthropic work, especially in the line of peace and temperance. The advancement committee, appointed by the general conference, maintains headquarters at 140 N. Fifteenth Street, Philadelphia. In 1910 this committee published *The Life and Labors of Elias Hicks*, which aroused public interest both in the United States and in England. In 1911 it

held a successful summer school at Swarthmore College and also at Richmond, Ind. During the year two yearly meetings, Baltimore and Philadelphia, have provided field secretaries for directing and inspiring the philanthropic work of the society. A weekly newspaper, the *Friends' Intelligencer*, is published in Philadelphia. The biennial general conference will meet at Chautauqua, N. Y., on August 28, 1912.

The Wilburite branch had in 1911 3880 communicants, 48 churches, and 47 ministers. It has seven yearly meetings, each of which is independent; relations between them are maintained by an annual exchange of epistles.

The Primitive body is very small, numbering in 1911 171 communicants, 8 churches, and 10 ministers.

FRUITS. See **HORTICULTURE.**

FRYE, WILLIAM PIERCE. United States senator from Maine, died August 8, 1911. He was born in Lewiston, Me., in 1831 and graduated from Bowdoin College in 1850. He studied law and was admitted to the bar, engaging in active practice. He took an active interest in politics and in 1861, 1862 and 1867 was a member of the State legislature. In 1866-7 he was mayor of Lewiston and from 1867 to 1869 was attorney-general of the State. In 1871 he was elected to the Forty-second Congress and continued to serve until 1881, when he was elected United States senator to succeed James G. Blaine. He was reelected for successive terms and he would have held his seat until 1913, had he lived. Senator Frye was one of the sturdiest figures in Congressional life in recent years. He was one of the few remaining members of Congress who, starting at the bottom of the political ladder, came up through the various promotions of politics to a seat in the House and graduated from that service into the Senate. In his early political career he was unusually active in politics. He was a very popular public speaker in Maine and throughout the country. In 1896 he was elected president pro tempore of the Senate. Six years later he was reelected to this office and again in 1907. He was practically Vice-President of the United States for six years, his first service beginning with the death of Vice-President Hobart and continuing until the close of President McKinley's first administration. Early in the extra session of 1911 Senator Frye, realizing his physical incapacity to preside over the session, resigned from his position as president pro tempore. As presiding officer, he was one of the fairest men who ever filled that office and was universally esteemed for his impartial rulings. Aside from his service in the House and in the Senate, his most notable public service was as a member of the Paris Peace Commission which negotiated the treaty that ended the Spanish-American War. He was a faithful and efficient worker in the Senate and as chairman of the committee on commerce had unusual opportunities for important services, which he invariably fulfilled. In his later years he was not active as a speaker in the Senate on account of age and ill health.

FULGURATION. See **CANCER.**

FURNITURE WORKERS' STRIKE. See **STRIKES.**

FYLES, FRANKLIN. An American playwright and dramatic critic, died July 4, 1911. He was born at Troy, N. Y., in 1847. He did news-

paper work as a reporter in Troy; in 1870 he removed to New York and secured a position on the *Sun*. For a time he did general newspaper work, but in 1885 became dramatic critic. In this position he remained until 1903. Although continuously employed in newspaper work he found time to write many plays, some of which proved popular successes. The best known of these was *The Girl I left behind Me*, which he wrote in collaboration with David Belasco, and which was produced for the first time in the Empire Theatre in New York, in 1893. His first play was *The Three Days*, produced in Philadelphia in 1876. Among other of his plays which were more or less popular were *Cumberland*, '61, produced in 1897; *Overlook*; *The Amanuensis*; *The Governor of Kentucky*; *A Ward of France*; *Kit Carson*; and *Drusa Wayne*. He wrote also many magazine articles on dramatic and other subjects. He was the author of a book entitled *The Theatre and its People*.

GAJITE. See **MINERALOGY.**

GALSWORTHY, JOHN. See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

GALTON, Sir FRANCIS. An English meteorologist, anthropologist and traveler, died January 17, 1911. He was born at Duddeston, Warwickshire, in 1822. His father was a Birmingham banker and his mother a daughter of Erasmus Darwin. He was, therefore, a cousin of Charles Darwin. He studied medicine at the Birmingham College Hospital and at King's College, London, and in 1840 entered Trinity College, Cambridge. On leaving Cambridge he devoted himself for several years to sport and travel. In 1845-6 he made a journey into the Sudan and in 1850-52 spent two years in Damaraland, Ovampoland, and Namaqualand. Shortly after his return to England he began to turn his attention to meteorological studies and devised many improvements in methods and processes of recording. He is best known, however, in connection with his anthropological inquiries, more especially in regard to the laws of heredity. A distinguished feature of his work in these branches was the application of statistical methods. In 1869 he published *Hereditary Genius: An Inquiry into its Laws and Consequences*. In this he endeavored to show that genius is mainly a matter of ancestry. He published in 1874, *English Men of Science; Their Nature and Nurture*. This was a natural history of 180 men prominent in the English scientific world at the time, giving data concerning their ancestry, health, stature, memory, etc., derived from their own answers to questions put to them by the author. The effect was to confirm the views he had already expressed regarding heredity. A third book on the same subject was *Inquiries into Human Faculty and its Development*. In this he discussed the varied hereditary faculties of different men and the great differences existing between different families and races. He suggested the inquiry as to how far history shows the practicability of supplanting inefficient human stock with better strains, and considered whether it might not be the duty of mankind to help the supplanting process by such efforts as might be reasonable. From this began the science of eugenics, which is now occupying the serious attention of scientists and others. In the second Huxley Memorial Lecture which he delivered in 1901 before the

Anthropological Institute he applied his studies in heredity to the discussion of the possibility of improving the human breed under existing conditions of law and sentiment. In this he aimed at putting the problem of race improvement on a scientific basis. In 1904 he addressed the Sociological Society on the subject of eugenics, which he defined as the science which deals with all the influences that improve and develop the unborn qualities of the races. A few months later he endowed a research fellowship in the University of London, for the promotion of the study of national eugenics.

In addition to the development of the theory of eugenics, Galton also applied himself to many other statistical and anthropological studies. He carried out a statistical inquiry into the efficacy of prayer and came to the negative conclusion so far as objective efficacy is concerned. He also devoted much time to the subject of visions, and adopted the view that however obscure and ill-explained they may be they belong for the most part, if not altogether, to an "order of phenomena which no one dreams in other cases of calling supernatural." His name is also closely associated with the study of finger-prints. In 1895 his *Finger-Print Directories* treated the subject from a practical point of view and showed how finger-prints might be used to discover the name of a person who withheld it or gave it wrongly. A committee appointed to consider the best means of identifying habitual criminals reported in favor of Galton's finger-print system combined with Bertillon's primary measurements. In 1909 he was knighted in recognition of his scientific attainments. Among his publications, in addition to those mentioned above, are: *Tropical South Africa* (1853); *Art of Travel* (1855); *Natural Inheritance* (1889); *Finger-Prints* (1893). He was consulting editor of *Biometrika* from 1902 to the time of his death. He published in 1908 a volume of reminiscences entitled *Memoirs of my Life*. He also wrote numerous memoirs, chiefly on the subject of eugenics.

GALVESTON (TEXAS) See MUNICIPAL GOVERNMENT.

GAMBIA. A British protectorate (3600-4500 sq. miles; population, 152,005) and crown colony (4 sq. miles; population, 8807) on the west coast of Africa. Capital, Bathurst. Imports (1909), £404,560; exports, £477,964. Tonnage entered and cleared (1909), 495,963 (British, 338,604). Revenue (1909), £72,675; (customs, £56,565); expenditure, £56,237. Gambia has no debt. Governor (1911), Sir George C. Denton.

GAME LAWS IN 1911. The legislation relating to game laws in 1911 exceeded in volume any previous year. It was, however, directed rather to changes in detail than to modifying the seasons. Laws affecting game were passed in all States in which the legislatures met, excepting Nevada. In Canada game laws were passed by Manitoba, New Brunswick, Newfoundland, Ontario, and Quebec. In five States, Delaware, New York, North Dakota, Oregon, and Wyoming, the warden systems were reorganized. Nine other States increased the warden system or strengthened it in other ways. In California the State was divided into six fish and game districts and separate seasons were provided for each. State game preserves were established in Montana, North Dakota,

Idaho, Washington, Manitoba, and Newfoundland, while Massachusetts, Oregon, and Pennsylvania arranged for the creation of future preserves without further legislative action. Measures looking to the increase of game by propagation or purchase were adopted by Massachusetts, New Jersey, Indiana, and Wyoming. Provisions for the possession and disposal of game reared in private preserves under suitable regulations were made in California, Maine, Massachusetts, Michigan, Missouri, and Wisconsin.

Among the novel features of the year's legislation was the prohibition of the use of dogs wearing bells or other noise-producing devices in wild-fowl shooting in Delaware, of automobiles in duck hunting in North Dakota, and of guinea pigs in hunting rabbits in Michigan. In Michigan also a 25-day deer license with a 45-day season was established. Disbarment of claims for damage to crops by deer by the owner of lands posted against deer hunting was voted in Vermont. In Maine a measure authorized the export of game for advertising purposes.

OPEN SEASONS. Some important modifications were made in the laws relating to open seasons. In South Dakota absolute protection was given to elk and sheep; to elk in British Columbia; to deer and elk in seven counties in Idaho, and all big game in four other counties of the State; to deer in five counties of Oklahoma; and to sheep in several districts of British Columbia. The deer season was shortened in several of the States.

BAG LIMITS. A decided advance in legislation was made in limiting the bag of game. The deer limit was reduced from two to one in Minnesota and seven counties in New Hampshire. Limits were reduced in California on mountain quail; in Kansas on prairie chickens, quail, plover, and waterfowl, and in Maine on ruffed grouse and woodcock.

MISCELLANEOUS PROVISIONS. Iowa and Kansas adopted measures declaring the ownership of game to be in the State. Michigan repealed its law prescribing a penalty for the careless shooting of human beings, while New Hampshire adopted a measure of this kind. Utah provided for a State conservation commission to cooperate with federal and State departments and officials. In Vermont was created the position of State ornithologist.

NON-GAME BIRDS. The non-game bird law of Kansas was greatly strengthened. Maine placed coots, kingfishers, blue herons, and loons on the protected list, and New Hampshire revoked the authority of the commissioners to permit scientific collecting. New Jersey passed a plumage law identical with the Shea law adopted by New York in 1910.

GANGUT. See BATTLESHIPS.

GANSBACHER, JOSEF. An Austrian musician and teacher of singing, died in June, 1911. He was born in Vienna in 1829, and studied first under his father, who was a composer and organist in the Cathedral. He afterwards studied singing in both Germany and Italy and was for many years active at the Conservatory. Among the famous pupils who received instruction from him were Milka Ternina, Fritz Plank, Frau Naval, Katrina Klapsky, and Nikolaus Rothmühl.

GARBAGE AND REFUSE DISPOSAL. The disposal of garbage, ashes, paper, and other combustible refuse, as well as bottles, tin cans, old metal, and miscellaneous non-combustible



Photograph by Paul Thompson, N. Y.

SIR FRANCIS GALTON

DIED JANUARY 17, 1911

wastes, continues to be a troublesome problem in many cities. This is largely because garbage and refuse disposal is so seldom dealt with as a problem of engineering and economics, requiring technical skill in designing disposal works and good engineering and business management in their operation. Most of the larger cities of the country have got rid of their garbage for years past by what is known as the reduction process, under which (1) the grease is separated from the solid matter by boiling or steaming the garbage or else by extraction with naphtha or some other light hydrocarbon, while (2) the remaining solid matter or tankage is dried and pulverized for use as fertilizer base. This method prevails in Boston, New York, Philadelphia, Baltimore, Washington, Pittsburgh, Buffalo, Cleveland, Columbus, Cincinnati, and elsewhere, including some relatively small cities, where they have abandoned primitive means of garbage disposal, and depend upon cremation and incineration. As a rule, the older garbage furnaces were poorly constructed for their work, required much costly fuel to assist the garbage to burn, and gave trouble from smoky chimneys, imperfect burning of the garbage, and, in some cases, unpleasant odors. Within the past few years high-temperature furnaces of the British type have been introduced into the United States and Canada, with satisfactory results. In 1911 such furnaces were in use or under contract in New York City (for small outlying districts), Montgomery, Ala., Seattle, Wash., San Francisco, Cal., Vancouver, B. C., and Westmount, P. Q. Although in Great Britain, on the continent of Europe, and at Westmount, the heat from garbage and refuse incinerators is utilized for raising steam for electricity and other works, conditions have not seemed to favor the practice as yet in this country. This is partly due to differences in labor conditions and in demands for electric current.

It should be explained that, while garbage reduction works treat garbage only, incinerating plants do best when such combustible refuse as is available is mixed with the garbage. Abroad, garbage, ashes, and other refuse are commonly dumped promiscuously into "dustbins," and subsequently burned together. The general practice in the United States is to make at least two separate collections: one for garbage and one for ashes, and (except where garbage reduction is practiced) to mix more or less miscellaneous refuse with the garbage on the one hand and the ashes on the other. At Milwaukee, the perhaps novel plan of taking to the incinerating plant just enough of the nearest ashes and combustible refuse to aid best in the burning of the garbage has been practiced. Half garbage and half ashes and other refuse was the aim at the outset. In 1911, partly as a result of studies made by engineers under direction of the Milwaukee bureau of economy and efficiency, the percentage of garbage burned was increased to about sixty per cent. As a result of these and other studies made by the bureau named the efficiency of the Milwaukee furnaces was materially increased (see special report of the bureau; also brief abstract in *Engineering News*, September 7, 1911).

With two exceptions, all the garbage reduction works in the United States are owned and worked by private companies. The plant at Cleveland, O., was bought by the city in 1905

and in 1910, Columbus, O., built a plant. A comparative study of the operating results of these two municipally owned plants, prepared by John H. Gregory, was published in *Engineering News* of November 30, 1911. For the year 1910, the Cleveland reduction works yielded a net revenue of \$1.60 per ton of garbage treated, after allowing for operating expenses, depreciation, and capital charges. This revenue came from the grease and tankage produced. The average price of grease in 1910 was 3.84 cents per pound, and of tankage \$7.19 per ton. The grease was 3.75 per cent. (by weight) of the garbage treated, and 3,350,064 pounds, or 1678 short tons, were produced. At Columbus, during the first six months of 1911, the reduction works also showed a profit, but owing to the fact that the plant was not yet being operated at full capacity the profit was less than that made at Cleveland. The grease at Columbus was 2.57 per cent. and the tankage about 15 per cent. (by weight) of the garbage before treatment. With improvements proposed, the percentage of grease is expected to go to 2.8. The average price of grease at Columbus during the first half of 1911 was 5.19 cents a pound and of tankage, \$10.28 a ton. The Cleveland and Columbus figures are significant because never before had such detailed financial results of garbage reduction works been published and also because of their indication that the final disposal of garbage can be effected at a profit. It should be understood, however, that this profit applies only to disposal (i. e. not to collection and disposal), but in each case freight charges for conveying the garbage by rail from the city to the works were deducted from the gross revenue.

A study of the refuse disposal problem at Toronto, Ontario, made in 1911, indicated that the most economical solution would be reduction for the garbage and incineration for combustible refuse, rather than incineration for both garbage and refuse. It was at first supposed that incineration of mixed refuse would be most economical with utilization of the heat of combustion to generate electricity, but the low cost at which electric current from Niagara Falls is delivered in Toronto by the provincial hydro-electric commission would make it cheaper to use the current and let the heat go to waste instead of building and operating the plant necessary for its utilization. Indications are that reduction and incineration works for Toronto taken together would yield a slight revenue when the population of the city reaches 600,000, provided that the salable portions of the combustible refuse are sorted out and marketed. Otherwise there would be slight expense for garbage and refuse disposal.

Where garbage is not treated in reduction plants nor burned, it is sometimes dumped more or less promiscuously in some out-of-the-way places, which is liable to cause a nuisance. A better plan is to bury it under six to twelve inches of earth. City garbage is sometimes fed to hogs, as is the almost universal practice with garbage produced on farms and in rural districts generally. If the garbage is reasonably fresh, properly handled, and the piggeries well kept, there is little more reasonable objection to feeding the city refuse to hogs than country garbage. It is, of course, difficult to keep it fresh, especially in hot weather, and, where collected in large cities, there are obvious difficulties in

keeping a garbage piggery in a thoroughly sanitary condition. Many of the dangers portrayed, however, are more imaginary than real. The Bureau of Animal Industry, United States Department of Agriculture, is authority for the statement that feeding garbage to hogs causes tuberculosis among them, but it adds that this is no more true of garbage than of unsterilized milk. Heat properly applied will remove this danger from either garbage or milk.

Finally, a few words may be said about the garbage and refuse disposal in relation to the health of human beings. Broadly speaking, the collection and disposal of these wastes is a matter of comfort and convenience and aesthetics rather than health. So far as infection from specific disease germs is concerned, a dollar spent in any one of many other lines of health protective work would be worth a hundred spent on garbage disposal. Most of what is written and said about garbage and health harks back to the old theory that infectious diseases arise *de novo* from filth, instead of spreading from the infected person to the non-infected human being. Allegations that the garbage can is a menace because flies breed in garbage should also be received with caution and a regard for governing conditions. In the first place, according to Dr. L. O. Howard's *The House Fly; Disease Carrier* (New York, 1911) the house fly rarely breeds in garbage, and in the second place the time which elapses between the laying of the eggs of the fly and the development of adult insects is longer than the intervals between garbage collection in most of even the poorest scavenged cities.

GARDNER, OBADIAH. United States senator (Democrat) from Maine. He was born in 1852, in Grant, St. Clair county, Michigan. At the age of twelve years he removed to Maine, where he attended the common schools and Colburn Classical Institute. He engaged in farming and in the lime and lumber business at Rockland, Me. From 1872 he held various positions in the city government of that city. He was a member of the State Board of Agriculture, and from 1897 to 1907 was master of the State Grange. In 1908 he received the unanimous nomination for governor of the State by the Democrats and came within 7000 votes of election. He was appointed United States senator on September 23, 1911, to fill the vacancy caused by the death of Senator William P. Frye (q. v.).

GARMENT MAKERS' STRIKE. See STRIKES.

GAS ENGINES. See INTERNAL-COMBUSTION ENGINES.

GATUN DAM. See PANAMA CANAL.

GEMS, ARTIFICIAL. See CHEMISTRY, INDUSTRIAL.

GEMS, SYNTHETIC. See CHEMISTRY, INDUSTRIAL.

GEOGRAPHICAL SOCIETY, AMERICAN. A learned society organized in 1852 for the investigation and dissemination of any geographical knowledge by discussion, lectures, and publication; for the encouragement of geographical exploration and discovery; and for the establishment in the chief maritime city of the country, for the benefit of commerce and navigation and the great industrial and material interests of the United States, a place where the means shall be afforded of obtaining correct

information for public use concerning every part of the globe. In 1911 the fellows of the society numbered 1210. The library contains about 50,000 volumes and is constantly increasing. Two gold medals are awarded at the discretion of the executive council. These medals are bequests from General Cullum and Charles P. Daly, and are called the Cullum and Daly medals respectively. The Cullum medal was awarded in 1911 to Dr. Hermann Wagner of Göttingen, Germany, in recognition of his great services to the science of geography. The Charles P. Daly medal was awarded to Grove Karl Gilbert, of Washington, D. C., in recognition of his many notable contributions to knowledge in the field of physical geography. On May 15, 1911, possession was taken of the new home of the society, erected at a cost of \$250,000. The land on which the building stands was the gift of the late Collis P. Huntington. The building is equipped with the most modern appliances for research and includes rooms for the editorial and library force, the map floor, and the drafting floor, besides accommodations for meetings in the social life of its members. The society issues a *Bulletin*, the *Geographical Record*, the *Scientific Notes*, and original papers. The officers in 1911 were as follows: President Archer M. Huntington; vice-president, John Greenough; treasurer, Henry Paris, Jr.; domestic corresponding secretary, Archibald D. Russell. The editor of publications is C. C. Adams.

GEOGRAPHIC SOCIETY, NATIONAL. A learned body, founded in 1888 with the object of collecting and diffusing geographic knowledge through its official organ, the *National Geographic Magazine*. The society has maintained during the summers of 1909-10-11 an expedition in Alaska, headed by Prof. Ralph S. Tarr of Cornell University and Prof. Lawrence Martin of the University of Wisconsin. This expedition made an investigation of the glaciers of Copper River, and Yukatat Bay, and Prince William's Sound. The work was finished in 1911 and the scientific data given to the world. A course of twenty lectures is given by the society from November to April. The officers in 1911 were: President, Henry Gannett; vice-president, O. H. Tittmann; secretary, O. P. Austin; treasurer and editor, Gilbert H. Grosvenor, whose headquarters are the Society Building, Memorial Hall, Washington, D. C. The membership in 1911 was about 90,000.

GEOLOGY. INTRODUCTION. The recent developments in geology, so far as their trend may be gauged from our present standpoint, have marked a material advance for the different branches, probably of equal importance with the gains made at any time in the past. The basis of nearly all geological work is of course the areal map, and with the growing appreciation of its value to mining, agriculture, and other industries the field of operations of public surveys has been greatly extended. Such surveys are now established in many parts of the world and are reaching out farther and farther each year into the unexplored areas. Their scope is not restricted, as a rule, to map-making alone, but they usually carry on various investigations of scientific or practical import that are beyond the facilities and means of individual workers, and to some extent exercise a directive influence upon geological progress. In the foundations of geology no radical change can be said to have taken place within the last few years.

The most interesting discovery bearing upon established notions of earth history was, undoubtedly, the radio-active properties of rocks, of which the first definite account was given by Strutt. This new form of energy seemed practically to nullify the theories of a cooling earth and of all phenomena dependent upon that condition; later opinion, however, tended to circumscribe its influence, though recognizing that it should be considered as an offset in some measure for the loss of heat by radiation. The main effect of the discovery, thus, has been to expand previous estimates of the earth's age according to purely physical methods of calculation, as employed, for example, by Lord Kelvin. In this result most geologists have been very willing to concur. Recent explorations in the very ancient rock formations which antedate the fossiliferous series have indicated that the conditions surrounding their genesis were not widely dissimilar from those of later periods, and that the length of pre-Cambrian time very likely is of the same order of magnitude as the whole subsequent era covered by the records of life forms. The evidences of glacial geology, curiously enough, have likewise added some chapters to the long and complex history of the globe. The ice invasion which took place in the Pleistocene period was not, apparently, a unique episode, marking the culmination of a gradual climatic change that began in remote ages; but there seems to have been several glacial epochs before it, one of them possibly within early pre-Cambrian time.

The review that follows is more particularly concerned with the events of the year 1911. While it can be only a fragmentary record, its aim is to afford some idea of the year's progress by selecting for notice those topics which have a broad rather than a very specific bearing upon the science.

STRATIGRAPHICAL CLASSIFICATION. A contribution to the subject of stratigraphical nomenclature by E. O. Ulrich proposed some far-reaching modifications in the generally accepted schemes as applied to Paleozoic rocks. In justifying the claim of the new system to recognition the author states that the advance of knowledge in this field has long outgrown the old arrangement which had for its basis a single line of evidence—that afforded by the fossil faunas and floras. The insufficiency of purely paleontological methods of correlation has frequently found expression; and one result has been the so-called dual system, in use by some authorities, which arranges the geological column according both to natural rock groups and to the dominant life forms. To that method Ulrich objects that it divorces rather than combines the two lines of evidence, whereas neither is alone capable of supplying the data for a positive standard. The use of fossils by themselves may suffice for classifying the strata within a single province, but in the correlation of the units of distinct areas there is need also for data of physical nature, or those supplied by diastrophism. In the new system all available evidences have been drawn upon to prepare a single chronological standard. Without going into the details of the proposed changes it may be said that the Paleozoic era, as now defined, is divided into two parts—the Eopaleozoic and the Neopaleozoic. The former era is arranged into four periods by the intercalation of two new members and includes in order the Cambrian,

Ozarkian, Canadian, and Ordovician. The Ozarkian and Canadian have been inserted for the purpose of properly recognizing certain units, the relations of which are considered by the author to have been misinterpreted and their importance underestimated. The Neopaleozoic era is also divided into four periods, including the Silurian, Devonian, Waverlyan, and Tennesseean. The question whether the new scheme fulfills all the requirements of a general standard has not yet received authoritative consideration; the weak point against its wide application is, admittedly, that the evidences have been gathered from a rather limited region, mainly in the southeastern section of this country.

DYNAMICAL GEOLOGY. The theory of isostasy, as an explanation of regional uplifts and subsidences of the earth's crust, has received much attention since the results obtained by Hayford were published in recent reports of the United States Coast and Geodetic Survey. This theory, it may be explained, is opposed to the earlier conception of a rigid earth which by its inherent strength alone sustains the continental platforms above sea-level, and postulates that the inequalities of the surface are counterbalanced by variations of rock density below. A mountain range, for example, by its excess of mass implies a deficiency of density, while depressions like ocean basins require an increased density in the underlying strata. An essential corollary, of great significance geologically, is that any change of load upon a part of the crust, such as is continually arising from the erosion of rock material in one place and its deposition in another, finds compensation by flowage in the substratum from areas of excessive weight to areas deficient in weight. In this flowage and its dragging effect upon the overlying structure some geologists would find the cause for folding, crushing, and differential movements of rocks which have generally been regarded as the results of contraction of a cooling globe. The theory has been subjected to careful analysis by Harmon Lewis, who concludes that Hayford's observations may be accepted in proof of some sort of isostatic compensation, though he believes its nature is not yet capable of determination. The principle may apply very well to major inequalities as illustrated by the ocean basins, but the evidence is against its operation in the case of local topographical features, at least in a complete way. Furthermore, the flowage of material at depths below sixty miles, which is the upper limit set by Hayford for compensation, would scarcely cause the observed effects of folding in the upper few miles of the earth's surface. This folding is evidence of lateral compression of enormous magnitude, whereas the controlling movements of isostasy are in a vertical direction.

In a paper on temperature gradients J. Königsberger states the conclusion that there is a normal ratio for the increase of heat with depth which holds true over the whole earth. Deviations from this ratio may be ascribed to local influences, heat producing processes, or to incompletely cooled lavas. Observations collected from different localities show the gain of temperature to be slower in the vicinity of large water bodies, especially on long peninsulas, and to be more rapid within recent eruptive regions. The latter feature may be of significance for the prediction of volcanic outbursts; the natives of Central America, it is stated, recognize in the

drying up of vegetation about a volcano an infallible sign of an approaching eruption.

ORIGIN OF THE OCEANS. In a study of the origin of the deep sea and its peculiar life forms J. Walther states that the oceanic basins are bottomed by sediments quite distinct in character from those laid down in shallow seas or at depths not exceeding 2000 meters. These sediments contain no quartz or other fragments of continental rocks; they contain no plant residues of brown or black color, nor remains of shallow sea animals or plant-feeders; and they are arranged in horizontal layers which spread over enormous areas. The continental lands have been depressed below sea-level repeatedly since the beginning of geological history, but in all the accumulations of sediments there is no fossil-bearing member of either Paleozoic or Mesozoic age that corresponds to the present sediments of the deep sea. It is probable, therefore, that the deep sea has existed in its present form for a long period and has not essentially shifted its place on the earth's surface since its origin. In different periods of geological time great land areas have sunk below the surface of the sea to be united to the deep basins. These depressions have been connected with epochs of mountain building, of which the greatest was at the close of the Paleozoic. It was during this convulsion, probably, that the deep sea basins originated, as is further evidenced by the fact that the deep sea fauna is lacking in Paleozoic elements but consists predominantly of Mesozoic types.

THERMAL SPRINGS. From his investigations of the geysers and hot springs of the Yellowstone Park, Arnold Hague concludes that the source of the water is not deep-seated or connected with igneous emanations, but comes from the surplus supply fed by rainfall. This penetrates downward to a sufficient distance to become heated and then is forced upward to the surface, where in the first stages it forms hot springs and pools. In time the solvent influence of the hot water enlarges the channels to considerable reservoirs, a process that may lead to geyser phenomena. The latter are more or less transitory, for, if the overflow or the dissipation of heat is increased sufficiently, explosive action will cease and the geyser becomes a hot spring, which is the final stage of thermal activity. The playing out of a geyser is not an indication that the source of heat below has been dissipated, but is due to the shifting of its channels. There are many features connected with the geysers that appear inconsistent with an igneous theory of origin; of critical importance may be mentioned the frequent variations of temperature, progressive transitions in chemical composition, lack of uniformity in mode of occurrence, and shifting points of discharge.

PETROGRAPHY. The present status of this study was the subject of the presidential address, delivered by Harker before the geological section of the British Association. In recent work upon the relations and distribution of the igneous rocks, one of the most important conceptions that has been developed is concerned with petrographical provinces, by which is meant that the rocks in an area of igneous activity formed at a given geological period present a certain community of chemical and mineral characters. This relationship may be explained as the result of a common origin.

The simplest view is to suppose that all the rocks of a province are derived from a single igneous magma, which originally was homogeneous. The variations found in the individual members can be traced to a process of cleavage or differentiation of the parent mass. Starting on this assumption, Harker believes there are two fundamentally distinct categories recognizable among igneous rocks, the one andesitic or calcic, and the other tephritic or alkaline. A given petrographical province belongs either to the calcic or the alkaline branch, typical members of the two not being found together. A survey of the known areas shows that the calcic has a decided preponderance over the alkaline branch. The distribution is of special significance in regard to geographical distribution, as illustrated by the more recent rocks, which can be mapped into great continuous regions of alkaline rocks on the one hand and calcic members on the other. The principle underlying this distribution is believed to be connected with the different kinds of stresses set up in the earth's crust and the ways of their relief. Thus, the alkaline rocks are typically associated with areas of subsidence caused by radial contraction of the globe and the calcic with folded areas ascribable to lateral compression. This view coincides with that held by Suess, who distinguished the two types, respectively, as Atlantic and Pacific, from their fields of distribution. As a next step in the natural grouping of igneous rocks, is suggested the comparison of the characteristics of the various provinces. This has been done in some instances, and expressed in more or less concise terms; among alkaline rocks by the relative ratios of potash to soda. A more precise way would be to average the chemical analyses of the chief rock types, weighted according to their relative abundance, and thus to calculate the approximate composition of the original magma. If this were done it would probably be found that the provincial magmas may be reduced to a limited number of types.

FORMATION OF DOLOMITE. The problem of the origin of dolomite, one of the commoner rock-forming materials, is attacked by Steidtmann, who concludes that it is 'predominantly a sea deposit and not the result of metamorphism acting on limestones after their emergence from the sea. The fact that less and less dolomite occurs in passing from the older to the younger rock formations indicates a progressive change in the conditions of deposition. The factor that has controlled this change is probably the chemical composition of the sea, and this is believed to have undergone decided modification since early geologic times in that the amount of calcium held in solution has largely increased in proportion to that of magnesium. It would appear that the present streams carry into the sea more calcium relatively than those of the primitive lands. The precipitation of dolomite is favored by solutions containing a high percentage of magnesium. By experimentation, G. Linck found that a substance of almost the same composition as dolomite can be prepared in the laboratory by adding calcium chloride to a solution of magnesium chloride, magnesium sulphate, and ammonium carbonate; on shaking a thick amorphous precipitate forms, which by heating becomes crystalline. The precipitate has the composition of dolomite, but is weakly doubly refracting and optically positive. It ap-

pears probable that dolomite may be formed in the sea by a related reaction between its magnesium and calcium salts and ammonium carbonate, which arises from the decay of organic matter.

GLACIAL GEOLOGY. The efficiency of glacial ice as an erosive agent has furnished a topic for much discussion, which, however, has not seriously altered the general attitude in regard to the subject. The weight of opinion still holds that the Pleistocene ice-sheet and its shrunken remnants represented by the glaciers of to-day have exercised a profound and very characteristic influence upon topography. The effects have naturally varied with local conditions. According to F. B. Taylor, the continental ice invasion was not responsible for the excavation of the basins occupied by the Great Lakes, and ice erosion in that vicinity was very limited, owing to lack of concentration and the steep gradient necessary for a relatively high velocity of flow. Certain features of Alpine scenery were ascribed by T. C. Chamberlin, to the work of ice rather than to atmospheric agencies; and the effects of the ice-cap upon the topography of Iceland were brought out by F. E. Wright.

The report of an international committee, which is collecting information on the variations of existing glaciers indicates that nearly all are now in process of retreat. Of the Alpine glaciers, only a few in the Oetzal have made advances and these are but temporary fluctuations; the general retreat has lasted for several decades and for the greater number since the beginning of the last century. The coastal glaciers of Scandinavia have recently shown an advance, but those in the interior have not participated in it. The glaciers of the Caucasus, Thian-Shan, Altai, Pamirs, and Himalayas are in retreat, likewise those in the United States and Canada. In Alaska there have been some local advances, of which the glaciers in Yakutat Bay have supplied the most remarkable instances. On the other hand the retreat of the glaciers from Glacier Bay has enlarged the latter by nineteen square miles since 1892.

ORE DEPOSITS. The contributions to this branch of applied geology have included some noteworthy general treatises, besides the usual volume of papers and reports relating to special fields. Among the former may be mentioned the work on which the German authorities, Beyschlag and Krusch, and the Norwegian geologist, Vogt have coöperated; the first volume of the three to be issued shows a comprehensive and discriminating treatment of the subject that should make it a valuable reference work for the student. The well-known treatise by Professor Beck, of Freiburg, may also be included in the list, for it has recently passed into its third edition, so revised and augmented as to have the character almost of a new compendium, though following the admirable lines of the preceding volumes. Still another German work, but limited in subject matter to the non-metallic mineral accumulations, is by O. Stutzer.

One of the principal methods by which ore-bodies are now recognized to have been laid down in rocks is that of replacement, giving rise to the replacement or metasomatic type of deposits. In contrast with the ordinary fissure veins, such deposits are not defined in regard to position or shape by preëxisting cavities, but have grown, so to speak, within the rocks themselves by a chemical interchange of

ore for the rock material. Accumulations of this kind are particularly common in the more soluble strata like limestones, and are important sources of copper, lead, zinc, and other ores. A recent paper by J. D. Irving describes the general features of replacement deposits and gives a very clear exposition of the principles governing their occurrence.

PETROLEUM. The geology of petroleum supplies the subject for a volume by H. Höfer, the first instalment of a comprehensive treatise that is intended to cover practically the whole field of scientific information on petroleum and its related materials. Various authorities have contributed descriptions of the petroleum fields in different countries. Of special interest to geologists is the chapter by Engler and Höfer on the origin of petroleum, concerning which the authors present some interesting, though not altogether novel, views. Petroleum is considered to be organic in its nature and mainly an animal product. The process of its formation was one of distillation combined with fermentation, and took place under heavy pressure, but not necessarily high temperatures. Essential to the process was the protection of the matter from the air soon after its accumulation; otherwise it would rapidly oxidize and be destroyed. The accumulation of considerable deposits has been facilitated by the action of gravity, as well as by the pressure of gas, which has brought about a local concentration of the disseminated oil particles. The pools occur most frequently in marine formations of shallow water or littoral type. Owing to the local migration under pressure and gravity, the oil is now found largely in anticlinal and quaquaversal folds, where it lies between accumulations of gas above and water below, the latter being usually salt. If water fails, the pools may form in synclinals. There is a definite relation between the productivity of a pool and the air pressure, the former being greater or smaller as the pressure falls or rises. Asphalt, ozocerite, and the heavy bitumens are explained as originating from petroleum, through evaporation, oxidation, and polymerization.

GEORGE V., COBONATION OF. See **GREAT BRITAIN, History.**

GEORGETOWN UNIVERSITY. An institution of higher learning, under the auspices of the Roman Catholic Church, founded in 1789, at Washington, D. C. The number of students enrolled in the various departments of the university in 1910-11 was 1280. The faculty numbered 147. There were no notable gifts during the year and no noteworthy changes in the faculty. The library contains about 100,000 volumes. The president is Rev. Joseph J. Himmel, S. J.

GEORGIA. POPULATION. The Thirteenth Census, taken in 1910, showed a population of 2,609,121, as compared with 2,216,321 in 1900. The principal cities with their populations in 1910 and 1900 are as follows (the figures in parenthesis are for 1900): Atlanta, 154,839 (89,872); Savannah, 65,064 (54,244); Augusta, 41,040 (39,441); Macon, 40,665 (23,272); Columbus, 20,544 (17,614).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1912. On that date the farms in the State numbered 291,027. The land in farms was 26,953,413 acres; the improved land in farms, 12,298,017 acres. The average acres per

farm was 92.62. These figures, except for those of improved land in farms and average acres per farm, are almost exactly the same as for 1900. In that year the improved land in farms was 10,615,644 acres and the average acres per farm 117.5. The total value of the farm property in the State in 1910 was \$580,546,381, compared with \$228,374,037 in 1900. The average value of all property per farm was \$1995, compared with \$1016 in 1900. The average value of land per acre was \$13.74, compared with \$5.25 in 1900. Of the farms operated by persons owning all or part of the land, 78,004 were free from mortgage and 18,257 were under mortgage. The farms operated by owners and managers numbered 100,047, and those operated by tenants 190,980. The native white farmers numbered 108,803; foreign-born white 385; negro and other non-white 122,559. Of the non-white farmers, all but 5 were negroes, 3 being Indians, and 2 Chinese. The value of the various kinds of domestic animals, poultry, and bees was \$80,393,993 in 1910, compared with \$35,200,507 in 1900. The cattle numbered 1,080,316, valued at \$14,000,958; horses, 120,067, valued at \$14,193,830; mules, 205,348, valued at \$43,974,611; swine, 1,783,684, valued at \$5,420,016; sheep, 187,644, valued at \$308,212. Poultry of all kinds numbered 5,328,584, valued at \$2,088,653. The acreage, production, and value of the principal crops will be found in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	3,692,000	59,072,000	\$49,030,000
.....1910	3,585,000	51,982,000	40,546,000
Wheat ....1911	145,000	1,740,000	1,984,000
.....1910	141,000	1,480,000	1,924,000
Oats .....1911	404,000	8,686,000	6,480,000
.....1910	404,000	7,353,000	4,706,000
Rye .....1911	12,000	114,000	157,000
.....1910	12,000	125,000	175,000
Rice .....1911	1,460	39,000	30,000
.....1910	4,000	88,000	66,000
Potatoes ..1911	12,000	864,000	950,000
.....1910	12,000	984,000	1,033,000
Hay .....1911	87,000	a 117,000	1,989,000
.....1910	87,000	122,000	2,001,000
Tobacco ..1911	1,200	b 1,080,000	302,400
.....1910	1,600	1,088,000	217,600
Cotton ...1911		c 2,560,000	

a Tons. b Pounds. c Bales.

MINERAL PRODUCTION. The total value of the mineral products of the State in 1910 was \$6,048,255, compared with a value in 1909 of \$5,580,643. Clay products were valued at \$2,532,038; stone at \$2,027,339. The iron ore mined in the State in 1910 amounted to 313,878 tons, valued at \$482,659, as compared with 221,016 tons, valued at \$332,478 in 1900. Gold was produced in 1910 to the amount of 1722 fine ounces, valued at \$35,602. A small amount of silver was also mined.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the following: Georgia Baptist Orphans' Home, Hapeville; Decatur (Methodist) Orphans' Home, Decatur; Hebrew Orphans' Home, Atlanta; South Georgia Methodist Orphans' Home, Macon; Masonic Home, Macon; Georgia Industrial Home; Orphans' Home for Colored Children, Columbus; Orphans' Home, Savannah; State Reformatory, Milledgeville; and Fulton County Reformatory, Hapeville.

POLITICS AND GOVERNMENT

The legislature met in 1911 and passed several important measures, which are noted in the paragraph *Legislation* below. On July 1 Hoke

Smith, who, on October 5, 1910, was elected governor of the State, was inaugurated.

The death of Senator Clay made it necessary for the legislature to choose his successor. Joseph M. Terrell had been appointed in 1910 by Governor Brown to fill out the unexpired term. On July 12 the legislature elected Governor Smith, who had assumed office as noted above, United States senator. This brought about a unique situation. Mr. Smith was desirous to carry into effect several important measures as governor. On Smith's election to the Senate, Mr. Terrell resigned, having been previously stricken with paralysis in Washington, forcing his return to Georgia. Mr. Terrell held that his term ended automatically with Smith's election, but he tendered his resignation in order to remove all doubt. To this letter Governor Smith replied, holding that Senator Terrell was still senator, until he (Governor Smith) qualified, and that he had no intention of so doing until the session of the legislature came to an end. He requested Senator Terrell to withdraw his resignation. This Terrell refused to do, as he was physically unable to return to Washington, and Georgia remained with a single representative in the Senate during the remainder of the session of Congress. On the convening of the Sixty-second Congress, Mr. Smith was sworn in as senator.

The election of Senator Smith made it necessary to hold another election for governor. The candidates for the office were Joseph M. Brown, who, in 1910, was defeated by Governor Smith, R. B. Russell, justice of the Court of Appeals, and Pope Brown, former State treasurer. In the primaries held on December 7 Mr. Brown carried 90 of the 146 counties of the State, and received a large majority of the votes. An important issue of the campaign was the liquor question. Mr. Brown had declared that he would veto any further liquor legislation that was not submitted to the people, and advocated the submission of the repeal or retention of the present Statewide prohibition law to the popular vote. Pope Brown stood for the present Statewide law and extreme prohibition, while Judge Russell advocated the immediate repeal of the present Statewide law, favoring the substitution of local option.

On December 12 the State Democratic executive committee met in Atlanta to canvass the vote for governor and to outline the conduct of the campaign in 1912. The committee decided that a Statewide presidential primary election should be held at some date after the second Wednesday in April, 1912, and not later than June 12. On September 27 the voters of Atlanta rejected the proposed charter providing for the commission form of government.

OTHER EVENTS. On March 24 the Merchants and Miners' Transportation Company was fined \$20,000 by Judge Speer of the United States Circuit Court at Savannah for granting discrimination in rates on grain shipments.

STATE GOVERNMENT, 1911. Governor-elect, J. E. Brown (see above); Secretary of State, Philip Cook; Treasurer, William J. Speer; Comptroller and ex-officio Com. of Insurance, W. A. Wright; Attorney-General, Thomas S. Felder; Supt. of Education, M. L. Brittain; Commissioner of Agriculture, Thomas G. Hudson—all Democrats.

JUDICIARY. Supreme Court: Chief Justice William H. Fish; Beverly D. Evans, Presiding

Justice; Associate Justices, J. H. Lumpkin, M. W. Beck, Samuel C. Atkinson, and Horace M. Holden; Clerk, Z. D. Harrison—all Democrats.

STATE LEGISLATURE, 1911. Democrats, Senate, 13; House, 182; joint ballot, 225; Republicans, Senate, 1; House, 1; joint ballot, 2; Democratic majority, Senate, 42; House, 181; joint ballot, 223.

The representation in Congress will be found in the article UNITED STATES, section *Congress*.

GEORGIA, UNIVERSITY OF. An institution of higher learning at Athens, Ga., founded in 1785. The number of students enrolled in the various departments of the university in 1911-12, was 619. The faculty numbered 50. There were no notable changes in the faculty during the year, and no noteworthy benefactions were received. The productive funds of the university amounted to \$390,916, and the annual income to about \$170,000. The president is D. C. Barrow, A. M.

GERMAN ELECTION LAW. See NEW JERSEY.

GERMAN ANTARCTIC EXPEDITION. See POLAR RESEARCH.

GERMAN DRAMA. See GERMAN LITERATURE.

GERMAN EAST AFRICA. A German protectorate, bordering on the Indian Ocean. Estimated area, 365,000 sq. miles; estimated population, 7,000,000. There are government and mission schools. Cacao, coffee, vanilla, tobacco, rubber, sugar, tea, cotton, coconuts, cardamoms, cinchona, and fibre plants are raised on the German plantations. Minerals exist, and gems are found in large quantities. Imports (1909), 33,941,707 marks; exports, 13,119,481 (rubber, 2,543,365 marks; sisal, 2,323,025; ivory, 960,085; copra, 797,946; coffee, 731,590; wax, 403,301). Railways, 212 miles. Work on the extension from Mrogoro to Kilimatinde (240 miles) progresses. Telegraph lines, 1500 miles. Post offices, 39. Revenue and expenditure (estimate '910-11) balanced at 14,605,000 marks (including imperial subvention of 3,545,000 marks). Governor (1911), Baron von Rechenberg; seat of government, Dar-es-Salaam.

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA. A religious denomination, founded in 1840 at Gravois Settlement, near St. Louis, as the Evangelical Association of the West. In 1877 the present name was adopted. The synod represents in doctrine the Prussian Union of 1817. It is found in almost all the States of the Union and parts of Canada, but its strength is greatest in the central and north central States. The most recent statistics show 1047 pastors, 1295 churches, and 236,615 communicants, and 117,390 Sunday-school scholars. The total value of the church property is about \$14,000,000. The amount contributed for the maintenance of churches during 1911 was \$1,010,505; for church work and benevolences, \$185,428. The denomination maintains missions in the Central Provinces of India, where there are 8 men missionaries, 11 women missionaries, 68 native helpers, and 135 native teachers. Elmhurst College, at Elmhurst, Ill., is under the auspices of the denomination, which also supports the Eden Theological Seminary at St. Louis. The work of the synod, which was formerly carried on exclusively in the German language, is now being done in English to a considerable extent,

especially in the large cities. The official organs are *Der Friedensbote* and *The Messenger of Peace*. Charitable institutions are maintained for orphans, superannuated ministers, and the widows and orphans of deceased ministers. Nine institutions are engaged in deaconess work according to the Kaisersrath model.

GERMANIC PHILOLOGY. See PHILOLOGY, MODERN.

GERMAN LITERATURE. The year 1911 has, like its predecessor, been a rather quiet one in the German book-world. The generation, which in the parlance of the period had revalued old values, religious, moral and æsthetic, and stood sponsor for the Young Germany of the century's end, has reached maturity and paused in its work of revolt and reform. So marked is the sane and moderate tenor of its utterances today, as compared with the vociferous language of some twenty-odd years ago, that the question which appeared as the headline of an article in a prominent periodical, "Is Nietzsche Dead?" struck many readers as exceedingly timely. The present tendency seems rather to be towards revising the new values and returning to the old, or to compromise between them. Unfortunately the reaction seems to have affected the attitude of the authorities, which assume a certain degree of censorship over literary matters in the empire. That a publisher and an editor should be fined for reproducing a part of the journals of Flaubert and that the police should prohibit the performance of a play founded upon Bertha von Suttner's world-famed story *Die Waffen nieder* (Ground Arms), is very curious. On the other hand it is encouraging to learn that the reign of the best seller seems a thing of the past, Lists of books most in demand, or most frequently reëdited are no longer accorded so conspicuous a place in the columns of magazines as they were a few years ago. It speaks well for the taste of the average book buyer that Clara Viebig's story of Berlin after 1870, *Die vor den Toren*, which was published in 1910, should within a year have reached its fifteenth thousand, and been but little behind the best advertised sensational success of the year. It is also pleasant to note, that the dismal failure of Gerhart Hauptmann's last play *Ratten* at the Lessing theater in Berlin, in January, in no way affected the success of his story *Der Narr in Christo*, which had been published a few months before, and which within a year has reached its eighteenth edition. After all, Hauptmann is a personality standing for the modern school and his hold upon the reading public of his country is merited. One of the great successes in fiction recorded for the year 1910, Enrica Händel-Mazetti's *Die arme Margaret* came into new prominence when an over-zealous admirer accused Karl Schönherr, whose highly praised drama *Glaube und Heimat* had its initial performance at the end of the year, of having plagiarized Frau Händel-Mazetti's ideas, a charge which was proved baseless, but from which controversy the famous dramatist did not emerge without some loss of dignity. Aside from this unpleasant incident the course of literary production during the year 1911 was unmarred by any sensational occurrence.

FICTION. It cannot be said that the year 1911 has had any one great novel, whether historical or of contemporary life, but it has had several that narrowly miss the quality of true greatness. Ernst von Wolzogen's *Der Erzketzer* is

an exhaustive study of the independent mind and the artistic temperament in conflict with the traditions of conventional society, based largely upon the author's own life, but none the less trustworthy as a picture of his time and his world. Grete Meisel-Hess, whose sociological treatise *Die sexuelle Krise* is being discussed among students of the problems of sex and society, has summarized the divers currents of thought and waves of emotion that sway the present generation in a comprehensive picture of life among the intellectuals of Vienna and Berlin, which is most significant for the future historian of the morals and manners of our time. Korfiz Holm covers a part of the same ground in his novel *Die Tochter*, the story of a famous writer and his only child, who leaves him to seek self-expression on the stage, but returns disillusioned and finally finds the love that reconciles her with life. That book, too, contains the portraits of contemporary types easily recognized in the artistic circles of Germany. A semi-biographical novel of unusual interest is Helene Boehlau's *Isobies*, a fascinating record of the author's extraordinary career, written in her exquisitely individual style. All these stories with their glimpses of life in the world of art, letters, and music in Berlin, Munich, and Vienna are important contributions to the more intimate chronicles of the period. Among novels by women about women, which are multiplying enormously, Gabriele Reuter's *Frühlingsträume* deserves a prominent place, treating with profound insight the tragedy of the actress who convinces by her art, but fails to find credence in life. Helene Mühlau has touched upon one of the most vital problems of the day in her story of an army officer's family, *Nach dem dritten Kind*, and in *Eine irrende Seele* sympathetically traces the pilgrimage of an over-sensitive soul in conflict with the cruel realities of the world. Ida Boy-Ed in *Mir wer die Schussucht Kennt* offers an eloquent plea for the emotional young wife, estranged by the husband's long absence in foreign countries and led astray by the glamour of a girlhood love. The latest novel by Graf Keyserling, *Wellen*, properly belongs to this class, because it deals mainly with a woman who had married before she knew her mind and on being divorced by her husband finds herself declassée through her marriage to her lover. Thus the problem of love and marriage seems more and more to dominate the fiction of modern Germany and in the delineation of the heroines, there is an evident tendency towards finer individualization. A strikingly original variation of the theme is presented by the Swiss author Ernst Zahn, who in *Die Frauen von Tanno* treats the complications which ensue when a priest and a pedagogue-reformer attempt to enforce celibacy upon the women of a rural community ravaged by an ailment which seems hereditary. Another unusual theme is handled by Carlot Reuling in *Die Strasse der Erkenntnis*, the hero of which suffers from having fallen heir to his father's fame and when he proposes to the girl he loves, discovers that here, too, his progenitor had anticipated him. An intimate study of the struggles of two Englishwomen of the Victorian era handicapped by their gentle birth is the burden of Gerhard Ouckama Knoop's *Verfallstag*. Hermann Stegemann, the Alsatian, interests his readers in the character of a country girl of the Black Forest, who leaves her village as servant in a summer hotel and returns as wife of the

owner. Karl Bittermann relates with great dramatic force the fate of a peasant driven to the city by circumstances, but finding her way back to her native soil and herself. A semi-historical novel is Rudolf Herzog's *Burgkinder*, which covers the period from the French Revolution to the empire and alternately shifts its scene from the Rhine to the Seine. From the older generation have come some new books: One by Rosegger and posthumous volumes by Adolf Wilbrandt, Wilhelm Jensen, Adolf Stern, and Wilhelm Raabe. Among short shorties those arranged in Decameron-fashion and called *Der goldene Spiegel*, by Jakob Wassermann, rank first as artistic achievements. Hermann Sudermann's *Die indische Lilie* is a clever successor of the author's first book of short stories, published about twenty-five years ago. A great variety of themes is treated by Franz Servaes in his volume *Wenn der Traum zerrinnt*, yet he has succeeded in justifying the collective title.

DRAMA. The two great rivals for supremacy on the German stage to-day, Hermann Sudermann and Gerhart Hauptmann, have both failed to score a success with their latest plays: Hermann Sudermann, with his drama in blank verse *Der Bettler von Syrakus* and Gerhart Hauptmann with his grim tragi-comedy of the Berlin stage-and-slum-world *Ratten*. Hugo von Hofmannsthal's *Rosenkavalier* attained a measure of celebrity through the music of Richard Strauss, who made the daring little comedy into a light opera. Arthur Schnitzler's powerful picture of life in the Viennese smart set, *Das weisse Land*, grips by its grim irony. Hermann Bahr's *Die Kinder* is not likely to have the success of *The Concert*. Other ambitious plays in prose and verse that saw their initial performance during the year were Wilbrandt's posthumous *Siegfried der Cherusker*, Eduard Stucken's sonorous *Lancelot*, Hans Kyser's *Medusa*, Paul Ernst's *Brunhild*, Herbert Eulenberg's *Anna Walewska*, and the *Achill*, by Ernst Rosmer, the author of *Königskinder*. Joseph Rueder has once more raised hopes of future achievement by his *Schmied von Kochel* and Max Dauthendey by a very effective play based upon the life of Catharine of Russia, *Spieleereien einer Kaiserin*. Otto Gysae struck a new note in his comedy *Höhere Menschen*; Ludwig Thomas scored another success by the robust Bavarian humor of *Lottchens Geburtstag* and a dream-play by Paul Apel, *Hans Sonnenstrasser's Höllenfahrt* profoundly impressed the critics. Among dramas so far only known in book form, Carl Hauptmann's *Napoleon Bonaparte*, a dramatic poem in two parts, is distinguished more for its psychology and its poetry than for dramatic construction. The greatest box office receipts went as usual to the men who have for many years controlled the market for comedy and farce. When the records for the year 1910 were closed, it was found that the operetta kings, Fall and Lehar, had as many performances to their credit as all the classical and modern dramatists taken together; no doubt the result of the year 1911 will be the same.

POETRY. Among the poetical productions of the year Wilhelm Schmidtbönn's *Lobgesang des Lebens*, ranks first, through both the same and strong spirit as the fire and sweep of its rhythms. Another book of verse standing apart from the average by a rare dignity and depth of sentiment is entitled *Vigilien*, by Albert H. Rausch. Börries Freiherr von Münchhausen, acknowledged master of the modern "Ballade"

which for several decades had been sadly neglected by German poets, has published two volumes of *Neue Balladen und Lieder* and *Das Herz im Haraisch*, which justify the high esteem in which he is held. One of the women poets who some years ago attracted much attention by the vitality of her topics and the frankness of their treatment, Margaret Beutler, has sent out a new book of verse which indicates that she has entered upon a new phase of her development, though it might have been suggested by a better title than *Leb wohl, Bohème!* Christian Morgenstern is one of the few poets who, in spite of a productivity which would have long exhausted the average fund of poetic inspiration, manage to retain an individual distinction in both matter and manner, of which his sonnets *Ich und Du* are an admirable example. Rudolf Presber has published a new volume called *Und all' die Kränze*; Gustav Falke has edited a volume of selections from his poems; Maurice Reinhold von Stern strikes in his *Wildfeuer* notes familiar to readers of his verse; Else Lasker Schüller, one of the most gifted women poets of the country, has written a volume of verse called *Mein Wunder*, and Maria Janitschek has published a collection of her poems. Heinrich Spiere's *Dichtungen* are of the same serious and noble calibre as his prose works. Carl Albrecht Bernoulli figures as the author of that rare phenomenon among works of modern poetry, an epic, called *Odyseus*. The posthumous book of verse by Otto Julius Bierbaum *Die Schatulle des Grafen Thummel* is full of the charm of his humor and his pathos.

ESSAYS, TRAVEL, HUMOR, ETC. The quantity of books of essays and treatises on various subjects that have been published during the past year is bewildering. Adolf Harnack's *Aus Wissenschaft und Leben* is a scholarly and stimulating volume. Lady Charlotte Blennerhassett's *Streiflichter* is both illuminating and fascinating. Oskar Walzel presents a valuable contribution to the history of recent intellectual development in the book called *Vom Geistesleben des 18. und 19. Jahrhunderts*. Franz Blei, the most brilliant, though, perhaps, not always the most profound essayist of modern Germany, has published two volumes of miscellaneous writings. *Vermischte Schriften*, Hermann Bahr, appears once more as essayist in a book bearing the significant title *Austriaca*. Fritz Wittels is the author of a clever book entitled *Tragische Motive*. Among works of travel Norbert Jacques has published a most fascinating volume of Brazilian impressions called *Hiesse Städte*. Hans Heinz Ewers, always emphatically personal, calls his book of Indian travel *Indien und ich*. Oscar Kauffmann is more conventional and likely to reach a wider audience by his sumptuously illustrated volume, *Aus Indiens Deckungen*. A book of readable American impressions is Freiherr Hans von Barnekow's *Was ich in Amerika fand*. Dr. R. Wesside revives the memory of Fritz Reuter in his book *Aus dem Lande Fritz Reuters*, which deals with the speech and manners of Mecklenburg people. Ewald Gerhard Seeliger has collected some tales and jests of Silesian lore in a volume called *Zwischen Polen und Böhmen*. The unabated popularity of Wilhelm Busch is proved by the appearance of the twenty-second edition of the *Busch-Album*.

HISTORY, BIOGRAPHY, ETC. A valuable work on general history is the *Reptitorium der Ges-*

chichte in three volumes, of which the one covering antiquity has just appeared: *Altertum*, by Dr. A. Beckstadt. Of the *Illustrierte Sittengeschichte*, by Eduard Fuchs, two volumes have so far been published, covering the *Renaissance* and *Die galante Zeit*. Dr. H. Pantenius is the author of a comprehensive work on the history of Russia, *Geschichte Russlands*. Dr. Friedrich Schulze appears as the author of two historical works interesting to German readers, *Die Franzosenzeit in deutschen Landen 1806-15*, and with Dr. Paul Symack as collaborator, *Das deutsche Studententum von den ältesten Zeiten bis zur Gegenwart*. William Kauffman has added to the annals of the Germans in America by his book *Die Deutschen im amerikanischen Bürgerkriege*. Of biographies there has been an amazing quantity. A new Bismarck book is Gottlob Egelhaaf's *Bismarck—sein Leben und sein Werk*. Wagner's *Autobiography* has been supplemented by the simultaneous appearance of Ferdinand Pfohl's *Richard Wagner—sein Leben und sein Schaffen* and the fourth volume of F. Glase-napp's life of Wagner. Among the numerous books referring to Goethe days in Weimar are several biographies of merit: Wilhelm Bode's *Charlotte von Stein* and Ida Boy-Ed's *Charlotte von Kalb*, and a volume of letters by Johann Friedrich Merck to the Princess Amalia and Karl August. A volume of letters by Wilhelm von Humboldt to Schiller completes this group. Sigmund Rahner has contributed to Kleist biography by his *Heinrich von Kleist als Mensch und Dichter*, Ernst Schur presents *Heinrich von Kleist in seinen Briefen*. A noteworthy life of Lenau has been compiled from letters, diaries, and other material, and is called *Ein Kampf ums Licht*. Under the title *Briefe aus dem Vormärz*, an interesting volume is made up of letters addressed to Moritz von Hartmann by his contemporaries. A book of letters, diaries, and speeches by Ferdinand Lassalle has appeared. Lily Braun continues the record of her interesting career in the *Memoiren einer Sozialistin*. Another valuable book of memoirs is Friedrich Spielhagen's *Erinnerungen aus meinem Leben*. Other memoirs and letters are concerned with Lessing Heine, Platen, Uhland, and Nietzsche.

LITERATURE, CRITICISM, ETC. A very curious feature of the present is the abundance of brief monographs appreciative of contemporaries of varying rank. A whole literature has grown up about Gerhart Hauptmann, there have been studies of Schnitzler, Hoffmannsthal, Henckell, Carl Hauptmann, and many others. More justified seem the books devoted to writers that have recently died and really said their last word, as Hermann Anders Krüger's *Der junge Raabe* and Dr. Heinrich Spiero's *Wilhelm Raabe*. There has also appeared a book on *Gottfried Keller als lyrischer Dichter* by Gustav Müller-Gschwend. Heinrich Spiero's *Deutsche Geister* is an important contribution to the study of modern German letters. Dr. Wolfgang Golther writes interestingly on German lore and music in his book *Aus deutscher Sage und Dichtung*. One of the most complete and sympathetic histories of the Young Germany which was such a powerful ferment in the intellectual life of Germany after the stagnation and reaction of the Napoleonic period is J. J. Houben's *Jungdeutscher Sturm und Drang*. Albert Soergel has published a volume called *Dichtung und Dichter der Zeit*. Of Alexander

Baumgarten's history of the world's literature the sixth volume has been published and is devoted to Italy. Dr. Carl Weiser has written a history of English literature. Karl Dietrich is the author of a book covering a large ground, *Die osteuropäischen Literaturen*. Dr. Arthur Horbach has written a history of French literature. Of Max Koch's *Geschichte der deutschen Literatur* the seventh edition has appeared. Interesting books on art are Karl Scheffler's *Deutsche Maler und Zeichner in 19. Jahrhundert*, Wilhelm Bode, the indefatigable worker on the subject of Goethe, has traced the relation of Goethe to the musicians of his time in *Die Tonkunst in Goethes Leben*. Among books of folklore the year has had a collection of Chinese love-and-ghost-stories and one of Byzantine legends. Dr. Otto Henne am Rhyn is the author of a popular and illustrated *Religions und Sittengeschichte aller Zeiten*.

Sociology comes in for a larger share every year. One of the most noteworthy books on that subject is Otto Rühle's *Das proletarische Kind*. Under the collective title *Die Gesellschaft* appear brief monographs on sociological, economic, and other problems written by authorities like George Simmel and Albrecht Wirth and by others.

Bewildering is the large number of translations. The German translator seems to scour the globe in quest of old and new works and seems to find a publisher far more readily than the American author who attempts a translation. Of new editions of standard works it is almost impossible to keep track, since every large publishing house, like S. Fischer, the Insel-Verlag, the Xenien-Verlag, Eugen Diederichs, Albert Langen, Egon Fleischel & Company, and many others undertake the reissue of classical authors with their imprint.

Death has removed a number of German writers. Those whose loss is likely to be most deeply felt were Friedrich Spielhagen, the Nestor of German fiction and a link between the Young Germany of the thirties and that of the eighties; Martin Greif, poet and dramatist; Johannes Pröls, poet, dramatist, novelist, and essayist; Wilhelm Dilthey, philosopher and historian; Richard Weitbrecht, with his brother Karl, the author of a German literature of the nineteenth century; Dr. Bernard Suphan, the director of the Goethe-Schiller-Archiv in Weimar and Anton E. Schönbach, a critic and historian.

GERMAN MUSIC. See MUSIC.

GERMAN NAVY LEAGUE. See GERMANY, *History*.

GERMAN NEW GUINEA, or KAISER WILHELM LAND. A German protectorate, occupying the northeastern portion of the island of New Guinea. Area, about 70,000 square miles. Native population estimated at 110,000; whites (1909), 197. Imports (1909), 2,665,942 marks; exports, 2,458,844 (mostly copra). Vessels entered (1909), 691, of 419,772 tons. The budget (1910-11) balanced at 1,480,000 marks (including imperial subvention, 615,000). Governor (1911), Dr. Hahl, residing at Herbertshöhe in the Bismarck Archipelago. The (German) Caroline Islands, the Bismarck Archipelago, the Ladrone, the German Solomon, and the Marshall Islands (q. v.), are attached administratively to German New Guinea.

GERMAN POETRY. See GERMANY, LITERATURE.

GERMAN SAMOA. A German possession in the South Pacific. The island of Savaii has an area of 600 square miles; Upolu, 340. Total population (1910), 34,480 (white, 473; Chinese, 1334). In 1909 the imports amounted to 3,337,629 marks and the exports to 3,021,379 (chiefly copra); 123,775 tons entered at the ports. The revenue and expenditure were estimated to balance (1910-11) at 932,000 marks. Apia, in Upolu, is the residence of the governor. The governor in 1911 was Dr. Solf, until November, when he was appointed imperial secretary of state for the colonies.

GERMAN SOLOMON ISLANDS. A German possession, consisting of the islands of Bougainville and Buku (containing 4500 square miles and having a population of about 45,000) attached administratively to German New Guinea.

GERMAN SOUTHWEST AFRICA. A territory south of Angola, containing an area of 318,000 square miles and belonging to Germany. Population, about 200,000 (Europeans, 1910, 12,935). The most important industry is stock raising. Livestock (1910), 121,139 cattle, 343,989 sheep, 10,661 horses, 6064 mules, 6629 asses, 8095 angora and 319,000 other goats, 5208 swine, 954 camels. Value of diamonds from the Lüderitz Bay mines in 1909, 15,400,000 marks; copper ore exported, 31,497 tons. Imports, (1909), including government stores, 34,713,448 marks (cereals and flour, iron and iron work, textiles, beer, timber, tobacco, preserved meat); exports, 22,070,904 (guano, copper ore, diamonds, etc.). Germany furnished imports valued at 26,389,785 marks and received exports valued at 18,157,767. Railways open, 994 miles. Post offices, 62. The budget (1910-11) balanced at 34,998,000 marks, including imperial subvention, 11,416,000 marks. Governor (1911), Dr. Seitz, with headquarters at Windhoek.

GERMAN TRADE UNIONS. See TRADE UNIONS.

GERMAN UNIVERSITIES. See UNIVERSITIES AND COLLEGES.

GERMANY. An empire of Europe extending from France to Russia. Capital, Berlin.

AREA AND POPULATION. The area in square miles and the population by states, according to the census of December 1, 1905 (in thousands) and according to the census of December 1, 1910, are shown in the following table (*k*=kingdom, *g* grand duchy, *d*=duchy, *p* principality, *f. t.*=free town, *r*=Reichsland).

States	Sq. ml.	Pop. '05	Pop. '10
Prussia (k).....	134,616	37,294	40,165,219
Bavaria (k).....	29,292	6,524	6,887,291
Württemberg (k).....	7,534	2,302	2,437,574
Saxony (k).....	5,789	4,509	4,806,661
Baden (g).....	5,823	2,011	2,142,833
Meck'burg-Schwerin (g).....	5,068	625	639,958
Hesse (g).....	2,968	1,209	1,282,051
Oldenburg (g).....	2,482	439	483,042
Brunswick (d).....	1,418	486	494,339
Saxe-Weimar (g).....	1,397	388	417,149
Mecklenburg-Strelitz (g).....	1,131	103	106,442
Saxe-Meiningen (d).....	953	269	278,762
Anhalt (d).....	888	328	331,128
Saxe-Coburg-Gotha (d).....	764	242	257,177
Saxe-Altenburg (d).....	511	207	216,128
Lippe (p).....	469	146	150,937
Waldeck (p).....	433	59	61,707
Sch'zburg-Rudolstadt (p).....	363	97	100,702
Schwarzburg-Sondershausen (p).....	333	85	89,917
Reuss Younger Line (p).....	319	145	152,752

States (cont.)	Sq. mi.	Pop. '05	Pop. '10
Hamburg (f. t.).....	160	875	1,014,664
Schaumburg-Lippe (p)...	131	45	46,652
Reuss Elder Line (p)...	122	71	72,769
Lübeck (f. t.).....	115	106	116,599
Bremen (f. t.).....	99	263	299,526
Alsace-Lorraine (r).....	5,604	1,815	1,874,014
Total	208,780	60,641	64,925,993

Of the total in 1910, 32,040,166 were males and 32,885,827 females. The population of the empire in 1871 was 41,058,792; in 1880, 45,234,061 (average annual increase from 1871 to 1880, 1.08 per cent.); 1890, 49,428,470 (0.80 per cent.); 1900, 56,367,178 (1.31 per cent.); 1910, 64,925,993 (1.41 per cent.).

Population of the provinces of Prussia (1910): East Prussia, 2,064,175 (56 per square kilometer); West Prussia, 1,703,474 (67); Brandenburg, 4,092,616 (103); Pomerania, 1,716,921 (57); Posen, 2,099,831 (72); Silesia, 5,225,962 (130); Saxony, 3,089,275 (122); Schleswig-Holstein, 1,621,004 (85); Hanover, 2,942,436 (77); Westphalia, 4,125,096 (204); Hesse-Nassau, 2,221,021 (141); Rhenish Prussia, 7,121,140 (264); Hohenzollern, 71,011 (62); city of Berlin, 2,071,257; total, 40,165,219 (115).

Complete returns of the 1910 census in respect of religious adherence are not yet available. Figures for some of the states are as follows:

	Prot.	R. Cath.	Jews	Other
Prussia	24,830,908	14,581,604	415,867	336,840
Bavaria	1,942,386	4,862,233	65,065	27,008
Würt't'bg	1,671,183	739,995	.....	26,390
Baden	821,228	1,270,782	25,896	24,927
Hesse	848,116	397,534	23,993	11,408
Alsace-Lor. ..	391,067	1,387,462	31,708	4,327

In 1909 the number of marriages was 497,127, of births, 2,038,357, of deaths, 1,154,296, of stillbirths, 60,079, of emigrants, 24,921, and of emigrants to the United States, 19,930.

In 1910 German emigrants numbered 25,531 (to the United States 22,773, Canada 460, Brazil 353). Foreigners emigrating by German ports in 1908, 106,499; 1909, 249,637; 1910, 254,618.

The larger cities, with population, including the military, December 1, 1910; Berlin, 2,071,257 (1,888,848 in 1900, 1,578,794 in 1890, and 826,341 in 1871); Hamburg, 931,055; Munich, 596,467; Leipzig, 589,850; Dresden, 548,308; Colognd 516,527; Breslau, 514,765; Frankfurt-on-the-Main, 414,576; Düsseldorf, 358,728; Nuremberg, 333,142; Charottenburg, 305,978; Hanover, 302,375; Essen, 294,653; Chemnitz, 287,807; Stuttgart, 286,218; Magdeburg, 279,629; Bremen, 247,437; Königsburg, 245,994.

EDUCATION. Education is free and compulsory and the number of illiterates is almost negligible. In 1909 the proportion of illiterates among the army recruits was .02 per cent. Elementary schools (1906): Public, 80,584, with 166,597 teachers (29,384 women), and 9,737,262 pupils; private, 614, with 42,094 pupils. Secondary schools (1908): Public, 1405, including 226 normal schools; private, 56. There are 11 state-aided, degree-conferring technical high schools, with (1910) 753 teachers and 16,072 students. In addition there is a large number of institutions for various special or technical instruction. The 21 German universities had in the summer semester of 1910 54,845 matriculants (of whom 2169 women); in addition 3906 non-matriculated (1220 women). Matriculants in 1911, 54,962 (2552 women), as compared with 51,700

in 1909 and 33,700 in 1900. Matriculants at Berlin in 1911, 8039; Munich, 6890; Leipzig, 4592; Bonn, 4070; Freiburg, 2384.

AGRICULTURE. In 1900, 48.6 per cent. of the total area was under cultivation, 16 per cent. was meadow and pasture, and 26 per cent. was forest. In 1907, 27.95 per cent. of the population was supported by agriculture, against 34.9 per cent. in 1895. At the same time there were 5,736,082 farms, the total area being 78,665,370 acres, an average per farm of about 13.7 acres. There were 2,731,055 farms containing less than 1 hectare (2.47 acres); 2,306,529 contained 1 to 10 hectares; 674,932 from 10 to 100 hectares; 23,197 from 100 to 1000 hectares; and 369 contained over 1000 hectares. The farms held by the peasantry comprise 69 per cent. of the total area, other small holdings 5.5 per cent., and the large estates 25.5 per cent. It is estimated that 88 per cent. of the land tilled by peasant farmers is owned by them. The area and yield of leading crops are shown below for two years (1911 yield preliminary), with yield per hectare in 1910 (*w* = wheat, *r* = rye, *b* = barley, *o* = oats):

Crops	Hectares		Quintals*		Qs. per ha.
	1910	1911	1910	1911	
w	1,942,916	1,974,197	38,614,790	40,663,350	19.9
r	6,186,775	6,135,617	105,111,600	108,661,160	17.0
b	1,570,435	1,585,049	29,029,380	31,599,150	18.5
o	4,289,387	4,327,791	79,003,760	77,041,010	18.4

* Metric quintals (220.46 lbs.).

Other yields, in 1909 and 1910 respectively, in metric tons (2204.6 lbs.): Potatoes, 46,706,252 and 43,468,395; meadow hay, 22,140,927 and 28,250,115; clover, 8,956,696 and 11,943,657; alfalfa, 1,352,896 and 1,658,219; hops (in 1910), 6054; tobacco, 28,178. Wine production (1910), 2,020,620 hectoliters. The sugar beet is an important crop, and large quantities of sugar are produced and refined. Livestock, December 2, 1907: Horses, 4,345,043; cattle, 20,630,544; sheep, 7,703,710; swine, 22,146,532; goats, 3,533,970.

MINERALS AND METALS. Figures for mineral and metal production include those of the Grand Duchy of Luxemburg. The total value of minerals raised in 1909 was 1981 million marks, against 1971 million in 1908, 1845 in 1907, and 1637 in 1906. The quantities of the principal minerals raised are shown in the following table in metric tons:

Minerals	1907	1908	1909
Coal	143,185,691	147,671,149	148,899,745
Lignite	62,546,671	67,615,200	68,533,743
Iron ore	27,697,128	24,278,151	25,505,409
Zinc ore	698,425	706,441	723,365
Lead ore	147,272	155,861	159,852
Copper ore	771,227	727,384	798,618
Rock salt	1,285,138	1,331,984	1,370,668
Potash salts	6,749,368	6,099,022	7,041,173
Other products .	534,298	552,351	528,662

The more important reduction products are reported in metric tons in 1908 and for 1909 (provisional) as follows: Pig iron, 11,805,320 and 12,625,575; zinc, 216,490 and 219,766; lead, 164,079 and 167,920; copper, 30,001 and 31,126; tin, 6374 and 8994; silver, 407 and 401; sulphuric acid, 1,391,653 and 1,434,709.

COMMERCE. The special trade (imports for

consumption and exports of domestic products) is shown in the following table in thousands of marks:

Imports:	1908	1909	1910
Merchandise	7,664,021	8,520,125	8,934,126
Coin and bullion	413,072	340,285	375,866
Total	8,077,093	8,860,410	9,309,992
Exports:	1908	1909	1910
Merchandise	6,398,527	6,592,242	7,474,661
Coin and bullion	82,926	266,451	169,537
Total	6,481,453	6,858,693	7,644,198

Imports and exports of merchandise, in millions of marks, have been as follows, by great classes—food substances (a), live animals (b), raw materials (c), manufactures (d), totals, (e):

	Imports of mdse.			Exports of mdse.		
	1908	1909	1910	1908	1909	1910
a	2,042.6	2,324.3	2,215.7	679.8	662.3	751.2
b	224.6	231.1	267.2	9.5	11.1	9.8
c	4,154.2	4,688.9	5,083.3	1,577.2	1,701.9	1,918.1
d	1,242.6	1,275.8	1,367.9	4,182.1	4,216.9	4,795.5
e	7,664.0	8,520.1	8,934.1	6,398.6	6,592.2	7,474.7

Principal articles of merchandise entered for consumption in 1910, in millions of marks (figures in parenthesis for 1909): Cereals, 887.0 (962.0); cotton, 601.2 (568.0) hides and skins, 545.2 (492.5); wool, 504.3 (466.2); rubber and gutta-percha, 296.6 (153.0); timber, etc., 288.1 (252.6); live animals, 263.9 (238.4); coal, 243.6 (260.2); copper, 216.2 (194.8); chemicals and drugs, 205.1 (287.7); silk, 181.7 (193.9); coffee, 176.6 (188.2); fruits, 176.2 (177.0); iron, 170.9 (135.9); copra, etc., 170.9 (116.6); eggs, 163.2 (156.6); woolen yarn, 119.5 (119.7); fish, 106.9 (95.5); leaf tobacco, 104.1 (132.1); wheaten products, 102.8 (127.5); cotton yarn, 102.1 (89.5); linseed, 100.8 (105.7); oil cake, 92.8 (98.3); butter, 90.5 (96.5); iron manufactures, 81.7 (64.6); silk goods, 81.5 (69.5); rice, 80.3 (59.2); wine, 71.6 (47.3); tin, 70.5; flax and hemp, 70.2 (78.1); animal fats, 69.4 (111.4); machinery, 64.3 (63.5); furs, etc., 59.5 (63.3); petroleum, 56.8 (65.7); cotton goods, 56.5 (53.5).

Principal domestic exports in 1910, in millions of marks (figures in parenthesis for 1909): Iron manufactures, 810.3 (694.9); machinery, 459.9 (384.4); chemicals and drugs, 450.3 (380.9); coal, 444.6 (413.0); cotton goods, 374.8 (321.7); cereals, 314.7 (255.9); woolen goods, 263.3 (255.5); dyes, colors, etc., 246.3 (231.2); electrical apparatus, 218.2 (180.9); paper, 217.4 (200.3); sugar, 196.3 (207.3); leather, furs, etc., 167.9 (142.1); hides and skins, 149.1 (136.3); copper manufactures, 140.0 (114.6); ships, 123.8 (117.6); wool, 115.2 (111.1); apparel, 103.8 (87.7); glass and glassware, 99.2 (90.0); books, maps, etc., 97.1 (61.8); cotton, 87.7 (70.3); toys, 86.1 (76.1); pottery, 85.3 (76.1); leather manufactures, 78.5 (74.3); woolen yarn, 77.5 (109.7) musical instruments, 62.8 (56.3); gold and silver manufactures, 49.6 (70.7).

Trade with the countries commercially most important, in millions of marks (exclusive of coin and bullion) is shown in the following table:

Countries	Imports		Exports	
	1909	1910	1909	1910
United States	1,262.6	1,187.6	606.3	632.7
Russia	1,304.3	1,322.2	435.2	537.3
Great Britain	723.2	766.6	1,015.0	1,102.0
Austria-Hungary	754.7	759.2	767.3	821.6
France	485.1	508.8	455.1	543.4
British India	317.0	404.6	78.8	89.8
Argentina	437.7	357.2	175.4	240.2
Belgium	289.6	325.6	348.7	390.7
Brazil	234.3	278.9	91.8	121.4
Italy	287.9	274.5	289.0	323.5
British Australasia	233.1	267.9	58.4	63.3
Netherlands	253.4	258.5	453.5	498.7
Dutch East Indies	184.9	187.5	39.5	49.8
Switzerland	162.6	173.9	413.2	452.6
Sweden	141.8	163.8	156.2	190.5
Denmark	135.3	158.1	195.7	224.7
Chile	143.5	154.6	57.6	64.8
Spain	123.7	140.2	69.1	71.6
British West Africa	87.4	108.3	11.7	15.2
China	65.2	94.7	56.8	66.5
Egypt	95.7	93.6	32.2	34.2
Rumania	64.5	68.9	57.2	65.7
Norway	36.8	49.7	104.5	119.9

Imports, in millions of marks, from the German colonies in 1909 and 1910, 29.3 and 40.0; exports, 40.9 and 49.0.

SHIPPING. The following table shows the total vessels and the steamers entered and cleared, with registered tonnage, in 1909:

	Entered		Cleared	
	Vessels	1000 tons	Vessels	1000 tons
German	85,629	16,683	86,084	16,782
Foreign	23,896	11,782	24,152	11,902
Total	109,525	28,466	110,236	28,684
	Steamers ent.		Steamers cl.	
	Vessels	1000 tons	Vessels	1000 tons
German	57,674	14,458	57,702	14,556
Foreign	14,732	10,842	14,857	10,979
Total	72,406	25,299	72,559	25,535

The merchant marine, January 1, 1911, included 4675 sea-going vessels of 2,903,570 tons, of which 1973 of 2,396,733 tons were steamers.

COMMUNICATIONS. The railway lines in operation under government ownership or management and the total private lines were as follows on March 31, 1911 (normal gauge, narrow gauge, and totals, in kilometers—one kilometer=.62137 mile);

	Norm. g.	Nar. g.	Total
Owned or operated by:			
Prussia and Hesse	37,562	240	37,802
Bavaria	7,853	110	7,963
Saxony	2,809	476	3,285
Württemberg	1,938	101	2,039
Baden	1,721	28	1,749
Mecklenburg	1,099	...	1,099
Oldenburg	649	...	649
Prussia (Royal Military Railway)	71	...	71
Imperial government in Alsace-Lorraine	2,020	78	2,098
Government lines	55,722	1,033	56,755
Private lines	3,537	1,145	4,682
Total kilometers	59,259	2,178	61,437

The foregoing totals stated in miles are:

Government lines	34,624	642	35,266
Private lines	2,198	711	2,909
Total miles	36,822	1,353	38,175

The electrification of the Leipzig-Bitterfeld and Magdeburg line was in progress during the year and the Bitterfeld-Dessau section, 18 miles in length, was the first to be undertaken. Electric locomotives will be used on this line. The monorail line based on the Scherl and Brennan systems from Bad-Homburg to Frankfurt-on-the-Main was under construction, and the electric line between Bavaria and Tyrol over the Mittenwald almost completed.

Telegraphs are owned by the imperial government except in Bavaria and Württemberg, which states, under certain limitations, administer their own posts and telegraphs. Total telegraph offices (1910), 45,116, with 224,794 kilometers of line and 676,091 of wire. Total post offices (1910), 40,816.

FINANCE. The unit of value is the mark, worth 23.8 cents. The budget for the year ending March 31, 1912 (law of April 7, 1911), balanced at 2,924,790,065 marks (including extraordinary revenue and expenditure balancing at 216,975,817 marks). Larger items of estimated ordinary revenue: Customs, excise, stamps, etc., 1,482,873,300 marks (customs 638,291,000, spirits excise 163,476,000, sugar 151,919,000, beer 123,462,000); posts and telegraphs 734,161,600; railways, 128,893,000; matricular contributions of the several states, 212,004,700 (Prussia 131,858,385, Bavaria 21,011,037, Saxony 15,933,768). Of the extraordinary receipts, loans accounted for 97,500,006 marks. Larger estimated expenditures, including ordinary (permanent and transitory) and extraordinary: War, 815,670,790 marks; posts and telegraphs, 684,696,385; navy, 458,033,686; imperial treasury, 205,311,278; imperial debts, 285,748,054; pensions, 153,798,446; interior, 140,843,167; railways, 122,499,005.

At the end of 1910, the interest-bearing debt of the empire was 4,896,633,500 marks, having increased 643,133,500 marks in two years. Non-interest-bearing debt: Treasury bonds, 246,000,000 marks, having decreased 347,000,000; paper money, 120,000,000. Total debt, December 31, 1910, 5,262,633,500, as compared with 4,966,500,000 December 31, 1908, and 4,597,500,000 December 31, 1907. The invested fund for invalids amounted to 35,478,400 marks March 31, 1911. A war fund of 120,000,000 marks in gold is kept at Spandau.

ARMY. The Germany army is recruited by conscription, every citizen, with certain exceptions, being liable for service from his nineteenth through his forty-fifth year. Seven years are spent in the regular army either with the colors or in its reserve, five years in the first levy of the Landwehr, then ten years in the second levy, and finally with the Landsturm or Home Defense Army, until the end of the fifty-fifth year. These periods are modified somewhat in the case of the cavalry and horse artillery, and an Ersatz Reserve is maintained from the surplus of recruits over those required for the regular army. The army was organized into twenty-three corps, including three Bavarian corps and a corps of guards.

The quinquennial army bill of 1911 was adopted by the Reichstag on March 7, and became a law on April 1. In accordance with the quinquennial law of 1906 the peace strength had to be raised to 505,889 rank and file by 1910. This total under the law of 1911 was to be increased gradually to 515,321 by 1915, or an increase of 9428, exclusive of non-commissioned

officers, and was then to remain at that figure until the expiration of the term of five years, at the end of March, 1916. By that time the non-commissioned officers, who were in large part responsible for training the recruits and developing the army, would number over 90,000, while the one-year volunteers serving in the ranks would number some 14,000; therefore, the German army would have a net minimum total of 625,000 men. The apportionment would distribute the troops furnished as follows: Prussia, 399,026; Bavaria, 57,133; Saxony, 38,911, and Württemberg, 20,251.

The bill provided for the formation of 10 new machine-gun companies, 18 field batteries, 4 battalions, and 7 companies of foot artillery, 2 new airship battalions, and a battalion of motor transport troops, besides minor increases in other arms. The establishment of horses was to be increased by more than 4000, i. e., from 114,162 to 118,246, and of this increase 2376 were required for the machine-gun companies and 1715 for the field artillery. The sum of 3,000,000 marks was allotted for strengthening the fortress of Königsberg on the Russian frontier; and 1,600,000 marks for improving land fortifications, and 2,680,000 marks towards the fortress construction at Cologne.

A new regiment of foot artillery was to be established by developing the second regiment of artillery. The chief commands of the railway troops were to be reorganized, and an increase was also to be made in the effective strength of the horses of the field artillery. An attempt was to be made to increase the number of the camps of instruction. The German army had maintained twenty-six of these camps of instruction from the beginning of March to the end of October in each year. Military critics in Europe considered that these camps were far more useful in developing preparedness for war than the wealth of equipment of high technical grade that was being gradually added to the German army.

NAVY. The number and displacement of warships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, on December 1, 1911, are reported as follows: 7 dreadnoughts of 141,720 tons built, and 9 of 217,400 tons building; 21 first-class battleships of 252,712 tons built; 5 coast-defense vessels of 20,273 tons built; 2 battleship cruisers (armored cruisers of *Invincible* type) of 41,637 tons built, and 3 of 72,650 tons building; 9 armored cruisers of 94,245 tons built; 24 cruisers (6000 to 3000 tons) of 98,180 tons built, and 6 of 32,650 tons building; 15 cruisers (3000 to 1000 tons) of 34,528 tons built; 109 torpedo-boat destroyers of 58,474 tons built, and 12 of 9000 tons building; 22 torpedo boats of 3790 tons built; 14 submarines of 4140 tons built, and 10 of 6000 tons building; total tonnage built, 749,699; building, 337,700. The foregoing list does not include transports, colliers, repair ships, converted merchant vessels, etc., vessels over twenty years old, unless reconstructed and rearmed since 1905, and vessels not actually begun or ordered although authorized. The main batteries of the 7 dreadnoughts built aggregate 36 12-inch and 48 11-inch guns; of the 21 first-class battleships built, 46 11-inch and 40 9.5-inch guns; of the 2 battleship cruisers 18 11-inch guns. Of the 7 dreadnoughts built, 2 were completed in 1909, 2 in 1910, and 3 in 1911. Those building (December 1, 1911),

are the *Oldenburg* (launched June 30, 1910), *Kaiser* (launched March 22, 1911), *Friedrich der Grosse* (launched June 10, 1911), *Ersatz-Hagen* (launched November 11, 1911), *Ersatz-Egir*, and *Ersatz-Odin* (both laid down in the fall of 1910), and 3 ordered in August, 1911. The principal characteristics of the new German dreadnoughts completed may be seen in the following specifications of the *Helgoland*, launched in September, 1909, and completed in August, 1911: designed speed, 21 knots; displacement, 22,440 tons; length between perpendiculars, 515 ft.; beam, 92 ft.; draft, 27 ft.; battery 12 12-inch and 14 6-inch guns; torpedo tubes, 6; maximum thickness of armor belt, 9¾ in.; complement, 980. The battleship cruiser *Moltke*, launched in April, 1910, and completed in September, 1911, has a designed speed 26 knots (29½ reported at trials); displacement, 22,637 tons; length between perpendiculars, 610 ft.; beam, 96½ ft.; draft, 27 ft.; battery, 10 11-inch and 12 6-inch guns; torpedo tubes, 4; maximum thickness of armor belt, 10 in. The battleship cruiser *Goeben* was launched March 28, 1911. Total personnel, 3038 officers, etc., and 61,091 men. Budget estimate for the navy, year ending March 31, 1911, 442,176,282 marks; 1912, 458,033,686 marks.

GOVERNMENT. The imperial chancellor in 1911 was Theobald von Bethmann-Hollweg (from July, 1909). The imperial ministers, or secretaries of state, were: Foreign affairs, Alfred von Kiderlen-Waechter; interior, Klemens Delbrück; navy, Grand Admiral Alfred von Tirpitz; justice, Hermann Lisco; treasury, Adolf Wermuth; posts and telegraphs, Reinhold Kraetke; colonies, Friedrich von Lindequist. On account of dissatisfaction with the Franco-German treaty of November 5, 1911, von Lindequist resigned; he was succeeded by the governor of German Samoa, Dr. Solf. In May, 1911, a constitution for the Reichland, providing a certain measure of representative government, was adopted by the Reichstag. The constitution bears date of May 31, 1911.

HISTORY

PARLIAMENT. The chief subjects before the Reichstag during the winter and spring sessions were the Alsace-Lorraine constitution and franchise bills and the workmen's insurance-consolidation and amendment bill. In carrying through these measures, the former with some important amendments and the latter with scarcely any change, the government scored two substantial successes (see the following paragraphs). On January 31, the Reichstag passed the increment tax bill presented in the previous year. It taxed such increment in the value of the property as was not due to the agency of the owner, at rates ranging from 10 per cent. on increments not exceeding 10 per cent. of gross purchase price to 30 per cent. on increments exceeding gross purchase price by 200 per cent. In February the naval and war budgets were under consideration. By the end of that month the chief clause of the new army bill, providing for an annual increase during the next five years, was carried by a large majority, the opposition consisting of Poles, Socialists, and three members of the Centre. The debate on the second reading of the navy estimates brought out a remark from Admiral von Tirpitz expressing surprise at England's mistake in saying or

thinking that the building of the German navy had been hastened beyond the provisions of the Navy law. He declared that, as a matter of fact, not a penny had been collected for that purpose. On March 30, the chancellor made an important address in regard to the limitation of amendments.

He declared that he had not seen any intelligible or detailed proposal as to disarmament which was worthy of serious discussion. In the first place, if the great powers desired an agreement about an international disarmament they must decide on the position which the several nations should have in relation to one another. In other words, they must arrange a sort of precedence list. He said, "England is convinced and has declared that, notwithstanding all her wishes for a limitation of armaments and for the composition of disputes by arbitral procedure, her fleet must in all circumstances be a match for, or even superior to, any possible combination in the world." As to courts of arbitration, he said: "International treaties embracing the whole world and imposed by a world congress I consider to be as impossible as general international disarmament." He concluded with the remark that the condition of peaceableness is strength. When a people will not or cannot continue to spend enough on its armaments to be able to make its way then it falls back into the second rank. Outside Germany these remarks occasioned much adverse criticism in the press.

THE ALSACE-LORRAINE CONSTITUTION. In the summer of 1910 the government announced that it had decided upon a measure for according a constitution to Alsace-Lorraine. This measure, as formulated by the government and passed by the Bundesrath, made the territory autonomous, but left it in the status of a province without representation in the Bundesrath, and under the control of the emperor. On January 28, 1911, the constitution and franchise bills for Alsace-Lorraine were read for the first time in the Reichstag and were sent to a special committee. The franchise measure provided for the election of the lower chamber by universal suffrage, with plural voting for the older citizens. The government had desired to placate the democratic element by the introduction of a liberal electoral system and at the same time hold the reactionaries by excluding the province from representation in the Bundesrath. But the democratic element in the Centre demanded not only a democratic electoral system, but a footing of equality with the other states of the empire. They were joined in this by the Liberals and Socialists. The committee in charge of the measures adopted amendments placing Alsace-Lorraine in the rank of an independent federal state with three votes in the Bundesrath, and providing for the appointment of a governor for life by the emperor on the nomination of the Bundesrath. The government consented to allow Alsace-Lorraine three votes in the Bundesrath, but only on condition that these votes should be counted against Prussia, and not for her, since the governor for life was to be nominated by the emperor, who was King of Prussia. The Socialists were won over to this compromise measure by its provision for universal suffrage and the direct secret ballot, and the bill passed its second reading on May 24 by a majority composed of the Centre, the Liberals, and Socialists, while the Conserva-

tives voted against it. A significant feature of the affair was the recognition by the government of the Socialistic party, hitherto condemned as revolutionary, republican, etc., and its appeal to it to collaborate in an important legislative undertaking. This alliance between the government and the Socialists led to some sharp criticism by the Conservatives. The government was taunted with having received the measure as a gift from the Socialists. The grant of universal suffrage to Alsace-Lorraine was regarded as having an important bearing on the question of the Prussian franchise, for the inconsistency of the government's position in refusing to Prussia what it had granted to Alsace-Lorraine offered an easy mark for the attacks of the Prussian reformers. The Socialists were quick to see this, and began anew their campaign for electoral reform in Prussia. The opposition in general condemned the constitution as injurious to the interests of the empire. The Conservatives in particular declared that the bestowal of three votes upon Alsace-Lorraine was a menace to the interests of Prussia and undermined her power as a dominant state of the empire. In their arguments they ignored the fact that Prussian influence was insured by the provision that the new governor for life should be appointed by the emperor, who is king of Prussia. In Alsace-Lorraine it was opposed by those who demanded complete autonomy and considered the present measure inadequate.

WORKMEN'S INSURANCE. In addition to effecting its main purpose as to Alsace-Lorraine, the government secured another success in the passage of the workmen's insurance consolidation and amendment bill. This highly complicated measure, comprising some 2000 articles, seemed likely to meet with obstruction. In order to carry it through in the brief summer session, beginning on May 2 and ending in July, it was necessary to limit discussion in certain respects, and it was feared that the evident design of the government to have the bill passed before the elections would arouse the opposition of the parties of the Left. The number of clauses and the complexity of the subject seemed likely to give the Socialists an excellent opportunity for obstruction. These fears, however, were not realized. The Socialists, although they were dissatisfied with many important provisions, raised no obstacle, and even endeavored to hasten the vote. There was some lively discussion during the session on certain special questions, such as employment of physicians' aid in maternity cases, etc. But the bill was passed eventually with comparatively slight changes in the text as drafted by the commission which had for a long time been at work upon it. It passed its final reading on May 30 by a vote of 232 to 58, the majority consisting of Socialists and Liberals. The chief purposes of the measure were to combine the various imperial insurance schemes in a single law, to extend sickness insurance to agricultural laborers, casual laborers, and home workers, and to make a beginning of insurance for widows and orphans. (See **WORKMEN'S INSURANCE**.) These two successes strengthened considerably the position of the government in the Reichstag.

THE BAGDAD RAILWAY. As a result of the Potsdam meeting between the czar and the kaiser in the autumn of 1910 a convention between Russia and Germany concerning railway projects in Persia was formed on

January 13 and signed on August 19. By this the Russian government engaged not to oppose the completion of the Bagdad Railway project or the participation of foreign capital in that enterprise. In order to meet the German need for a line that should link the Bagdad Railway with the Persian system the Russian government agreed to apply to Persia for railway concessions including one for a line from Teheran to Khanikin, the building of which must be begun within two years after the completion of the Sadidje-Khanikin line and completed within four years. The German government engaged to seek no new concessions for railways, roads, waterways, or telegraphs in Persian territory north of a line running from Kasri-Shirin on the western frontier along the parallel of Gazik to the Afghan frontier, which line divides the British and Russian spheres of influence according to the Anglo-Russian agreement of 1907. Both governments agreed to grant facilities for international traffic on their respective lines. The German government admitted that it had no political interest in Persia and declared that it would pursue only commercial interests there, while it recognized on the part of Russia special interests of a strategic and economic nature. The Russian government declared it would continue to apply toward Germany the rule of perfect equality of treatment as to trade in Persia. In the construction of the line from Teheran to Khanikin, Russia, had the right to call in any foreign financial group. This agreement was regarded by the other powers, especially France and Turkey, with suspicion and alarm. For the attitude of France, see **FRANCE**, paragraphs on *History*. In Turkey, Germany was blamed for seeming to discountenance Turkish enterprise by her promise not to support any demands, whether of her own subjects or those of other powers, for concessions in the north. It was assumed that Germany referred to concessions in a region that belonged to Turkey and it was asked why she should try to prevent the Turks from building railways in the provinces of their own empire. On the publication of the first reports of the convention the Turkish press emphatically declared its disapproval. In Great Britain there was a disposition to demand that the Germans should recognize the special British interests on the Persian Gulf as well as the special Russian interests in the north, but there was no evidence of any unwillingness on the part of the British government to come to an understanding with Germany as to the Bagdad line. Sir Edward Grey declared on March 8 that Great Britain had no right to object to concessions to the Germans in Turkish territory, but would be concerned if asked to consent to providing further revenues to the Turkish government, "because we have a right to demand that before we agree to those increased burdens the Turkish government should make it clear that the revenue is going to be applied to the purposes to which we wish to see it applied—namely, the good government and strengthening of the Turkish Empire—and is not going to be used to construct railways which for strategical or other reasons the Turkish government may be very anxious to have, but which may incidentally prejudice the interests of British trade." Apropos of a possible extension of the line to Koweit, he added that if the Bagdad railway proceeded farther than Turkish territory England's diplomatic position would be

very different. It was learned in March that the Imperial Bagdad Railway Company had given up their right to build the section from Bagdad to the Persian Gulf and to build a port at Busra, provided it received a share in any new company that was formed for that purpose. Thereupon the Turkish government began negotiations with Great Britain for building the line from Bagdad to the gulf. These negotiations were going on during the year, the British government stipulating for economic equality on the railway and a definite arrangement as to the Persian Gulf region as conditions for granting the increase of customs duties required by Turkey for the cost of the enterprise. It was also reported on March 22 that the arrangements between the Turkish government and the Bagdad Railway Company comprised three agreements: First, relating to the financing of the line as far as Bagdad; second, comprising a concession for the branch from Osmanieh to Alexandretta, and third comprising a concession for the harbor of Alexandretta. Under the first agreement the company was to receive securities which would enable it to construct a line within five years after the plans were procured and it was to abandon its claim to the proceeds of the 4 per cent. customs increase. The second agreement was described as offering the shortest route from Aleppo to the Mediterranean. The third agreement empowered the Bagdad Railway Company to build a harbor at Alexandretta under the same terms as that at the port of Haidar Pasha, which is the starting point of the Anatolian Railway.

THE MOROCCAN AFFAIR. During the summer public opinion was much agitated over the government's course in sending a gunboat to the Agadir in Morocco and subsequently negotiating with France concerning compensation to Germany for allowing France a free hand in Morocco. The sending of the *Panther* to Agadir was at first received with enthusiasm, but as the reports of the negotiations with France leaked out there was much concern lest Germany was not getting a fair share in the bargain. The speech of Mr. Lloyd-George, the British chancellor, declaring that if the parties to the Moroccan negotiations could not come to satisfactory agreement, Great Britain must intervene, occasioned much adverse comment in Germany. As the negotiations continued, however, the anxiety on the subject abated for a time, but was revived in the autumn. It seemed that the great majority of the German people desired peace, but insisted that Germany's economic interests be safeguarded and that she be treated in the political world as an equal. In certain quarters it was held that the German government had gone into this foreign adventure with a view to creating a platform for the next election, that it sought to appeal to the Nationalist sentiment by a successful stroke in foreign policy, and it was argued that its comparative failure in internal affairs made this necessary. However, the government having won two remarkable parliamentary successes in the Reichstag this argument lost some of its force. Public indignation was raised to a high point after the assembling of the Reichstag in the autumn. Criticism of the government for its Moroccan policy reached a point of great bitterness in the speech of the leader and chief organizer of the Conservative party, Herr von Heydebrand at a mass-meeting of Silesian Con-

servatives toward the end of the year. He declared that all patriots felt bitterly the loss of German prestige when they saw that France and England had attained their object. It could not be denied that now that the last empire in Africa had passed to France, the latter's prestige had greatly increased. The sending of a vessel to Agadir, though hailed with joy at the time, had had the bitter result of giving occasion to an act of colossal insolence on the part of the English government towards Germany. The Liberal ministry, which was always counted as a less warlike ministry in England, could congratulate itself and declare that England alone ruled the world. Germany should have been spared such an affront as that. So far as the Conservative party was concerned, it had not left the government in doubt in the negotiations, but that it would stand by it if it were necessary to take firm measures. For details of the Moroccan affair and its effect on German politics at the close of the year, see *MOROCCO, History*.

PRUSSIA. The Prussian Diet opened on January 10, 1911. The chancellor did not refer to the Franchise measure, but dwelt on the need of economy in the appropriations. The financial estimates for 1911 were announced as showing a considerable excess over the previous year, and the discussion of the budget followed. The question was raised in the Diet in March in regard to the demand of the Vatican that Catholic priests engaged as professors in government institutions shall take the anti-modernist oath. The pope in a letter to Cardinal Fischer had accused those who objected to this requirement of hostility to the church, and had said that priest-professors should be made either to take the oath or to resign. Members of the upper house interpellated the government, inquiring whether certain professors in the Prussian universities who had taken the oath had been compelled to do so and whether this was consistent with the oath of office which they took on becoming professors. Some went so far as to demand the rupture of diplomatic relations with the Vatican. This the chancellor refused, but at the same time warned the Vatican that it was placing German forbearance under a strain. The chief measures before the Diet were the Cremation bill and the measures unifying the administration of Greater Berlin and for requiring the Prussian communes to maintain technical schools. In Prussia, owing to the opposition of the clerical element, it was not possible to cremate the dead, although in adjoining states it had been permitted for a long time. It was necessary, therefore, to send bodies for cremation outside the kingdom, and this requirement was especially objectionable to the working classes, who were the most in favor of cremation. The law was passed, but with certain amendments which made its application difficult. Among these was the requirement that the consent of two-thirds of the municipal council was necessary for any cremation in the community. As to the administration of Berlin, plans had been under discussion for many years for the establishment of a single consistent municipal system, but all efforts had been frustrated by the jealousies of the municipal authorities and by a distrust on the part of the Liberal Berlin administration of the Conservative government. The new measure unites in a federation the municipalities of Greater Berlin,



Courtesy of the *Review of Reviews*

ALFRED VON KIDERLEN-WAECHTER
Minister of Foreign Affairs



Courtesy of the *Review of Reviews*

FERDINAND AUGUST BEBEL
A Leader of the Social Democrats

TWO PROMINENT FIGURES IN GERMAN POLITICS IN 1911

that is to say, Berlin itself, and its environs within a certain radius. The federal administration is to perform certain functions concerning the common interests of all the municipalities. Representatives from the constituent parts of the greater city form a sort of parliament to decide upon common interests. As to the measure concerning the maintenance of technical schools it was designed merely to give a legal status to a condition that already existed in most of the towns. It required those towns which had not established such schools, to create them. The government, however, encountered the opposition of the reactionaries, who refused to vote for the measure unless it provided for a system of religious instruction, and as this was impracticable, the bill was not passed.

In 1910 riots resulting from labor troubles occurred in the Moabite district of Berlin, and many arrests were made. The affair became the subject of much discussion in the press. The police were blamed by the Socialists for extreme severity, and even outside Socialist circles the government was accused of making too much of the affair. There was great interest in the trial which took place in the latter part of 1910 and concluded on January 23, 1911. Out of thirty-four persons arrested three were acquitted and the rest were sentenced to terms of imprisonment varying from two days to three years. The court in the course of the trial passed a severe censure upon the police, who, it said, had gone too far in many cases. At the same time it excused these excesses on account of the difficulties of the situation which exposed them to great peril and frequent insult and provocation.

OTHER EVENTS. On January 17 the submarine, U3, sank in Kiel harbor, and three of the twenty-eight men on board lost their lives. These were the commanding officer, a lieutenant, and one seaman. Sentence for *lèse majesté* was rendered early in February against a Socialist, Hanke, for declaring in a public lecture that the statement attributed to the emperor in the famous London *Daily Telegraph* interview to the effect that a large number of the German people were hostile to England, was a conscious lie. He was sentenced at Duisburg to four weeks' imprisonment. On May 17 an arrangement was made with the United States concerning the price of potash, thus bringing to a close the difficulty over the potash syndicate, which had arisen in 1910. (See FERTILIZERS). The annual meeting of the German Navy League was held at Nuremberg on May 28. It assumed that the government was going to build in 1911 only two, instead of four, big ships, and the league demanded that one more large cruiser be built each year from 1912 on. This agitation on the subject was condemned in official quarters as likely to cause further international troubles. On June 10 the tenth dreadnought was launched. In Germany, as in other countries, there was much agitation over the increased cost of living, and Socialist deputies in the Reichstag expressed the general discontent. They demanded the suspension or reduction of import duties on food. In reply to an interpellation as to the price of food and measures of relief, the imperial chancellor defended the present fiscal system and denounced the agitation about prices. He denied that the protection of agriculture had injured industry or starved the people and held that the increased

cost of living was a mere incident of general industrial progress. Despite the increased prices the standard of living was higher than ever. The emperor and empress visited Vienna in March and later Venice and Corfu. They visited London on May 15 to attend the unveiling of Queen Victoria's statue. The crown prince made a tour of India, whence he returned in April. He visited St. Petersburg in May and London in June to attend the coronation. See **SOCIALISM**.

GERM PLASM. See **BIOLOGY**.

GEYSERS. See **GEOLOGY**.

GHEENT, W. J. See **LITERATURE, ENGLISH AND AMERICAN, Political and Social Science**.

GIBRALTAR. A British crown colony and naval station on the southern coast of Spain. Area, 1 $\frac{1}{2}$ sq. miles; greatest elevation, 1439 feet; population, estimated 1909, 23,915 (civil, 18,351; actual military, 5564); civil, April, 1911, 19,120. There are private and government schools, with 2819 pupils in 1909-10; government grant, £2458. Total tonnage entered (1909), 4,896,174 (British, 3,048,086). There are four miles of internal telegraph besides external cable communications. Revenue and expenditure in 1909, £85,540 and £82,313 respectively; in 1910, £80,920 and £76,410. Governor and commander-in-chief, General Sir Archibald Hunter.

GIBSON, WILLIAM CAMPBELL. A rear-admiral of the United States navy, retired, died May 10, 1911. He was born in Albany, N. Y., in 1838, and was educated in the schools of that city. After serving for a short time as a clerk in the hardware business in Albany, he went to sea in the merchant service in 1855. In 1861 he enlisted in the United States navy and in the following year was appointed acting mate. He was promoted through various grades until he became captain in 1900, and rear-admiral in the same year, when he was retired. He served on the Potomac flotilla and the North and South Atlantic blockading squadrons during the Civil War. After the war he served on the European, North Atlantic, Pacific and South Atlantic stations. During the Spanish-American War he commanded the steamer *City of Peking*, which carried part of the first military expedition to Manila. His last duty was the command of the battleship *Texas* on the North Atlantic station.

GIFTS AND BEQUESTS. The following list of gifts and bequests is compiled from the annual records kept by the *Chicago Tribune*.

The total donations and bequests made during 1911 of which record has been kept amounted to \$126,499,918. This is \$15,104,620 less than the recorded gifts and bequests made in 1910. The sum distributed in 1911 is divided as follows: Charities, \$32,561,117; educational institutions, \$61,879,296; religious institutions, \$20,166,505; art museums, galleries, and municipal improvements, \$9,930,500; libraries, \$1,942,500.

The gifts made by Andrew Carnegie during the year ranked easily first. They amounted in all to \$40,441,300. This included \$25,000,000 to the Carnegie Foundation, and \$10,000,000 to the Carnegie Institution at Washington. Mr. Carnegie also gave large sums to form hero funds in several European countries. The gifts of John D. Rockefeller amounted during the year to \$1,020,000. Of this \$1,000,000 was given to the Rockefeller Institute of Medical

Research. There were several other gifts in excess of \$1,000,000. One of these was the gift of R. A. Barnes of \$3,000,000 to found a hospital in St. Louis. By the will of Joseph Pulitzer various educational institutions in New York City and elsewhere received \$4,325,000. An unusual gift was one of \$1,500,000 given by T. C. Du Pont of Wilmington, Del., for a State boulevard. Only the gifts of \$5000 or more are noted in the list which follows:

Abbot, Clare, Waltham, Mass., will to charity, \$7500.

Abraham, Abraham, New York, willed to Brooklyn Institute of Arts and Science, \$10,000; willed to charity, \$75,000.

Aero Club, gift by H. F. McCormick, \$28,000.

Agricultural Scholarships, gifts by J. Ogden Armour, Chicago, Ill., \$5000.

Alix le Daim Hospital, gift by J. Pierpont Morgan, \$50,000.

Aldis, Owen F., Chicago, Ill., gift to Yale University, \$100,000.

American Board of Commissioners for Foreign Missions, unnamed donor, \$1,000,000; gift by D. K. Pearsons, \$100,000.

American Geographical Society, will by D. O. Mills, \$25,000.

American Missionary societies, reported gifts in 1911, \$13,368,000.

American Missionary Board. Total contributions for 1911, \$1,085,000.

American Museum of Natural History, willed by D. O. Mills, \$100,000.

American Scenic and Historic Preservation Society, willed by William P. Letchworth, \$500,000.

American University, unnamed donor, \$200,000.

Amory, Edward L., Boston, Mass., will to Boston Athenæum, \$5000.

Amsterdam Hospital, gift by William Sloane, \$25,000.

Amherst College, gift by W. G. Fitch, \$20,000.

Andover, N. Y., gift for library by Andrew Carnegie, \$5000.

Anglo-African Entomological Society, gift by Andrew Carnegie, \$15,000.

Armour, J. Ogden, Chicago, Ill., gift for Agricultural scholarships, \$5000.

Armstrong, Floris, Cincinnati, O., will to charity, \$227,700; will to Mechanics' Institute, \$70,000; will to University of Cincinnati, \$30,000; will to Public Library, \$20,000; will to church, \$21,700.

Arnold, A. C., Battle Creek, Mich., will to W. C. T. U., \$10,000.

Arnold, O. H., Providence, R. I., willed to Brown University, \$85,000; willed to charity, \$15,000; willed to library, \$5000.

Astor, John J., New York, gift to Rhinebeck, N. Y., \$20,000.

Atlanta, Ga., gift to schools by W. S. Witham, \$5000.

Atlanta Theological Seminary, willed by Sarah R. Sage, \$8000.

Atlanta University, willed by Alice M. Curtis, \$5000.

Atkins, Mary, Kansas City, Mo., will to Art Museum, \$300,000.

Atterbury, W. W., New York, will to church, \$75,000.

Atwater, S. C., Springfield, Mass., will to charity, \$75,000.

Augustana College, library, unnamed donor, \$200,000; gift by various donors, \$151,922.

Avery, Emeline R., Alton, N. H., will to charity, \$14,446.

Ayer, Edward E., Chicago, Ill., gift of historical documents to Newberry library, \$400,000.

Babcock, Mrs. G. L., Plainfield, N. J., willed to charity, \$10,000.

Bailey, C. M., Winthrop, Me., gift to Northfield Seminary, \$25,000.

Bangor, Me., fire relief fund gift, various donors, \$50,000.

Baptist Church, Chicago, Ill., extension fund, gift by various donors, \$50,000.

Barnard, Lydia A., Milton, Mass., willed to Boston Museum of Fine Arts, \$50,000; willed to charity, \$40,000; willed to Harriman Institute, \$150,000; willed to Harvard University, \$171,000; willed to Radcliffe College, \$115,000; willed to Tuskegee Institute, \$25,000.

Barnard College, willed by Joseph Pulitzer, \$1,000,000.

Barnes, Cora L., New York, will to School of Design, \$10,000.

Barnes, R. A., St. Louis, Mo., will to hospital, \$3,000,000.

Barton, Elizabeth S. M., Philadelphia, Pa., willed to charity, \$25,000.

Bates, Octavia W., Baltimore, Md., willed to University of Michigan, \$25,000.

Belgian Hero Fund, gift by Andrew Carnegie, \$100,000.

Bennett, Mary F., Philadelphia, Pa., willed to charity, \$28,000.

Berea College, gift by D. K. Pearsons, \$100,000.

Bergstadt, Mrs. Agnes, gift to Swarthmore College, \$25,000.

Bethany College, gift by E. W. Ogleby, and M. M. Cochrane, \$150,000; gift by R. A. Long, Kansas City, Mo., \$25,000.

Blocher, John, Buffalo, N. Y., willed to Blocher Home, \$135,000.

Blocher, William, Buffalo, N. Y., willed to Blocher Home, \$150,000.

Blocher Home, Buffalo, N. Y., willed by John Blocher, \$135,000; willed by William Blocher, \$160,000.

Bonsall, William, Philadelphia, Pa., will to hospital, \$80,000.

Bosse, Louise, Philadelphia, Pa., willed to charity, \$10,700.

Boston Art Club, willed by Moses W. Richardson, \$5000.

Boston Athenæum, gift by Edward L. Amory, \$5000.

Boston Medical Library, willed by Dr. O. F. Wadsworth, \$12,000.

Boston Museum of Fine Arts, willed by Nathaniel Thayer, \$250,000; willed by Lydia A. Barnard, \$50,000.

Boudmit, Elizabeth C. H., Philadelphia, Pa., will to church, \$35,000.

Bowen, Mrs. J. T., Chicago, Ill., will to Hull House, \$20,000.

Bowen, W. P., Muncie, Ind., gift to Transylvania College, \$15,000.

Bowdoin College, willed by Mary E. W. Perry, \$10,000; various donors, \$86,000.

Bowman, Maria E., New Orleans, La., willed to charity, \$30,000.

Bowne, Mrs. S. W., New York, gift to Poughkeepsie Hospital, \$50,000.

Boyd, William C., Chicago, Ill., gift to Harvard University, \$100,000.

Boyle, Catherine, Philadelphia, Pa., willed to church, \$30,000.

Brantford, Ont., gift to Industrial League, by John D. Rockefeller, \$10,000.

Breckenridge, Mary E., New York, willed to poor of Switzerland, \$10,600.

Brewster, Edwin L., Chicago, Ill., gift to Art Institute, \$5000; gift to charity, \$10,000.

Brookline, Mass., willed to church by Edith Child, \$8000; willed to charities by Sarah O. Matchett, \$250,000.

Brooklyn College, various donors, \$163,800.

Brooklyn Institute of Arts and Sciences, willed by Abraham Abraham, \$10,000.

Brooklyn Polytechnic Institute, willed by Walter E. Duryea, \$15,000.

Browne, Mrs. Archer, Orange, N. J., gift to Drew Theological Seminary, \$10,000.

Brown University, willed by O. H. Arnold, \$85,000.

Brown, W. V., Portland, Me., will to Y. M. C. A., \$40,000.

Bryan, Madge H., Philadelphia, Pa., willed to charity, \$6000.

Bryant, John D., Boston, Mass., will to Harvard Dental School, \$10,000; will to charities, \$70,000; willed to churches, \$10,000; willed to Fairmont College, \$5000.

Bryn Mawr College, will by J. C. Strawbridge, \$10,000; willed by Phoebe A. Thorne, \$150,000; willed by Emma C. Woerschaffer, \$750,000.

Buffalo General Hospital, gift by G. A. Plympton, Buffalo, \$5000.

Busch, Adolphus, St. Louis, Mo., gift to Harvard University, \$100,000.

Butler, Edward, Chicago, Ill., gift to Art Institute, \$150,000.

Butler, Mrs. H. B., Chicago, Ill., gift to settlement, \$70,000.

California School of Mechanical Arts, willed by Miranda Lux, \$1,000,000.

Campbell, James, Revere, Mass., will to charity, \$5000.

Canal Dover, O., gift to library by Andrew Carnegie, \$9000.

Canfield, R. A., gift to Saratoga National Park Commission, \$5000.

Carnegie, Andrew, gift to Anglo-African Entomological Society, \$15,000; gift for advancement of education, \$25,000,000; gift to Belgian Hero Fund, \$100,000; gift to library, Canal Dover, O., \$9000; gift to Carnegie Foundation, \$1,000,000; gift to Carnegie Institution at Washington, \$10,000,000; gift to Cornell University, \$60,300; gift to Denmark Hero Fund, \$100,000; gift to charities of Dunfermline, Scotland, \$1,250,000; gift to German Hero Fund, \$1,500,000; gift to Eaton (Pa.) library, \$7500; gift to library, Elizabeth, N. J., \$50,000; gift to library, Franklin, Tenn., \$10,000; gift to library to Fulton, Mo., \$12,000; gift to Holland Hero Fund, \$250,000; gift to library for colored people, Houston, Tex., \$15,000; gifts to Iowa libraries, \$154,000; gift to Illinois College \$75,000; gift of library to Los Angeles, Cal., \$210,000; gift to Mary Mitchell Association of Vassar College, \$10,000; gift of library to Middlesboro, Ky., \$15,000; gift of library to Milan, O., \$8000; gift to public library, New York, \$375,000; gift to Norwegian Hero Fund, \$120,000; additional gift to Pan-American building, \$100,000; gift to Pan American Union, \$25,000; gift of library to Sherman, Tex., \$50,000; gift to Sweden Hero Fund, \$250,000; gift to Thompsonville, Conn., library, \$7500; gift to Topeka Industrial Institute \$10,000; gift of library to Crooksville, O., \$20,000; gift of library to Sebastopol, Cal., \$7500; gift for library, Andover, N. Y., \$5000; Carnegie Foundation, gift by Andrew Carnegie, \$1,000,000.

Carnegie Institution at Washington, gift by Andrew Carnegie, \$10,000,000.

Central College, willed by Martha Monroe, \$8000.

Chadwick, Susan, Peabody, Mass., will to charity, \$7000.

Champaign, Ill., gift to church by W. B. McKinley, \$30,000.

Charles, W. H., Philadelphia, Pa., will to Law and Order Society, \$40,000.

Chicago, Ill., gift to Art Institute by Edward Brewer, \$5000.

Chicago, Ill., Colored Y. M. C. A., gift by U. W. Harris, \$25,000; gift by Cyrus H. McCormick, \$25,000; gift by Julius Rosenwald, \$25,000; gift by various donors, \$66,000.

Child, Edith, Brookline, Mass., will to charity, \$7000; will to church, \$8000.

Children's Home, gift by W. G. McCullough, \$100,000.

Chinese Famine Fund, gift by various donors, \$82,000; gift by various donors of New York, \$31,000.

Choate, Charles F., Southboro, Mass., willed to hospital, \$5000.

Christian Missionary Alliance, New York, various donors, \$50,000.

Christian University, Canton, Mo., unnamed donor, \$25,000.

Cincinnati, University of, will by Floris Armstrong, \$30,000.

Cincinnati, O., public library, willed by Floris Armstrong, \$20,000.

Cincinnati, O., willed to Musical Association by Mary Dexter, \$12,000.

City Missionary Society, gift by D. K. Pearsons, Chicago, Ill., \$50,000.

Clark, W. A., Washington, D. C., gift to Corcoran Gallery, \$5000.

Cleveland, O., Park, unnamed donor, \$500,000.

Cochran, A. S., New York, gift to Mount Vernon Hospital, \$16,000.

Cochran, J. H., Williamsport, Pa., will to charity, \$25,000.

Columbia University, willed by Joseph Pulitzer, \$2,250,000; gift by various donors, \$200,000; willed by Lizzie D. Lockwood, \$5000.

Connecticut Valley Historical Society, gift by estate of S. B. Wesson, \$1,000,000.

Cooke, Mary H., Cambridge, Mass., willed to college, \$16,000.

Cooper, E. B., Hampden, Conn., willed to Humane Society, \$60,000.

Corcoran Gallery, gift by W. A. Clark, \$5000.

Cornell University, gift by Andrew Carnegie, \$60,300; gift by Mrs. Russell Sage, \$800,000; various donors, \$30,000.

Coyser, Ellsworth B., New Haven, Conn., willed to Humane Society, \$50,000.

Crane, Charles R., Chicago, Ill., gift to charity, \$100,000; gift to Vermont Academy, \$5000.

Crimmins, Thomas D., New York, will to charities, \$8250.

Crooksville, O., gift of library by Andrew Carnegie, \$20,000.

Crozer, J. P., Chester, Pa., gift to Y. M. C. A., \$10,000.

Curley, John, New York, will to charities, \$180,000.

Curtis, Alice M., Wellesley, Mass., willed to Atlanta University, \$5000; willed to Hampton Institute, \$5000; willed to other educational institutes, \$110,000; willed to Radcliffe College, \$25,000; willed to Tuskegee Institute, \$5000.

Curtis, Mrs. F. T., estate of, gift to Williams College, \$35,000.

Curtis, Gen. H. K., gift of organ to Auditorium, Portland, Me., \$30,000.

Dangler, Antoinette C., Lake Forest, Ill., will to charity, \$11,000.

Dartmouth College, willed by Elijah M. Topliff, \$200,000.

Davis, Henry G., Elkins, W. Va., gift to Davis and Elkins College, \$100,000; gift of church to town, \$20,000.

Davis, Nathan J., Somerville, Mass., will to library, \$10,000.

Davis and Elkins College, gift by Henry G. Davis, \$100,000.

Daughters of American Revolution, will by Hugh V. Washington, \$75,000.

Delaware, gift of boulevard to State by T. C. DuPont, \$1,500,000.

Denmark Hero Fund, gift by Andrew Carnegie, \$100,000.

Denton, Mrs. C. B., Rutland, Vt., willed to hospital, \$50,000.

Dexter, Mary, Cincinnati, O., willed to charity, \$8000; willed to musical associations, \$12,000.

Dewey, Marie W., Northampton, Mass., will to charity, \$7000.

Diversey, Catherine A., Philadelphia, Pa., will to charity, \$12,000.

Dixon, Ill., Dixon Hospital, willed by Elizabeth Shaw, \$30,000.

Doane College, gift by D. K. Pearsons, Chicago, Ill., \$250,000.

Dodge, Mary C., New York, willed to charity, \$80,000.

Dorchester, Mass., willed to church by Alice C. Linscott, \$15,000.

Dortic, Adela A., New York, willed to church, \$15,000; willed to charities, \$119,500.

Douglas Hospital, Philadelphia, Pa., various donors, \$15,000.

Doyle, Annie E., New York, willed to church, \$15,000.

Doyle, John F., New York, will to church, \$20,000.

Drew Theological Seminary, gift by Mrs. Archer Browne, \$10,000; gift by Mrs. Stephen Greene, \$5000.

Dudley, Cornelia H., Galesbury, Ill., will to Knox College, \$20,000.

Duke, J. B., Durham, N. C., gift to Trinity College, \$50,000.

Dunfermline, Scotland, gift to charities by Andrew Carnegie, \$1,250,000.

Dunwoody, W. H., Minneapolis, Minn., gifts to Art Museum, \$400,000.

DuPont, T. C., gift of land to Institute of Technology, Boston, Mass., \$500,000.

DuPont, T. C., Wilmington, Del., gift of boulevard to State, \$1,500,000.

Durand, Calvin, Chicago, Ill., will to charity, \$8000; will to Lake Forest University, \$5000.

Duryea, Walter E., New York, willed to Brooklyn Polytechnic Institute, \$15,000; willed to charity, \$119,000.

Dysart, James, Hollidaysburg, Pa., gift to Y. M. C. A., \$15,000.

Eaton (Pa.) library, gift by Andrew Carnegie, \$7500.

Eaton, Georgiana C., Boston, Mass., will to church, \$10,000.

Eberhart, J. F., Chicago, Ill., gift to Wheaton College, \$5000.

Educational institutes, willed by Alice M. Curtis, \$110,000.

Elgin Academy, gift by Nathaniel C. Sears, \$10,000.

Elizabeth, N. J., gift to library by Andrew Carnegie, \$50,000.

Elkins, G. W., and sister, Philadelphia, Pa., gift to Y. M. C. A., \$880,000.

Ely, Smith, New York, willed to charity and churches, \$1,000,000.

Emery, Mrs. T. J., Cincinnati, O., gift to Y. M. C. A., \$225,000.

- Emporia, College of, various donors, \$100,000.
 Evans, Sarah, Marysville, O., willed to church, \$25,000.
 Everts, Jeannette, Santa Cruz, Cal., willed to charity, \$70,000.
 Fairmont College, willed by John D. Bryant, \$50,000.
 Faris, Thomas N., Bloomington, Ind., gift to church, \$11,000.
 Farwell, Mrs. F. C., Lake Forest, Ill., gift to Yale University, \$25,000.
 Fassett, Sallie S., Philadelphia, Pa., will to charity, \$8000.
 Ferguson, Mary A., New York, willed to charity, \$5000.
 Fish University, various donors, \$122,000.
 Fisher, Charles B., Springfield, O., willed to charity, \$20,000.
 Fisher, Susan, Norristown, Pa., willed to charity, \$15,000; willed to church, \$15,000.
 Flak University, gift by Julius Rosenwald, Chicago, Ill., \$12,500; various donors, \$114,000.
 Fitch, W. G., Hartford, Conn., gift to Amherst College, \$20,000.
 Fogel, Alexander, Philadelphia, Pa., will to charities, \$21,100.
 Fox, George L., New York, willed to charity, \$500,000.
 Frances Juvenile Home, gift by J. A. Patten, \$10,000; gift by James A. Patten, \$15,000.
 Frances Willard National Temperance Hospital, willed by James B. Hobbs, Chicago, Ill., \$25,000.
 Frankenthal, Imanuel, Chicago, Ill., will to charities, \$9000.
 Franklin, Tenn., gift to library by Andrew Carnegie, \$10,000.
 Friendship, N. Y., willed to library by Mrs. W. H. Pitt, \$15,000.
 Friends University, gift by Isaac Hammon, \$36,000.
 Fulton, Mo., gift of library by Andrew Carnegie, \$12,000.
 Gallway Hospital, Nashville, Tenn., various donors, \$153,926.
 Gans, Leo, Philadelphia, Pa., willed to charity, \$22,000.
 Gary, E. H., New York, gift to Northwestern University, \$6000.
 Gasaway, W. Va., gift of church to town by H. G. Davis, \$20,000.
 Gates, John W., New York, will to charity, \$100,000; gift to Methodist Church, \$250,000; gift to Methodist Church, including twelve acres, \$50,000; will to Gates Memorial Hospital, \$100,000; will to Port Arthur, Tex., \$1,225,000.
 Gates Memorial Hospital, willed by John W. Gates, \$100,000.
 Gay, Maria M., Newton, Mass., willed to charity, \$13,000.
 General Evangel. German College, will by Diedrich Merchendorf, \$50,000.
 Georgetown, Mass., willed to church, by Charlotte L. Wright, \$5000.
 George Washington Memorial Association, gift by unnamed donor, \$100,000.
 German Hero Fund, gift by Andrew Carnegie, \$1,500,000.
 German Hospital, will by Eliza Limme, \$10,000.
 Gettysburg College, gift by Mrs. C. H. Glatfeld, \$25,000.
 Gibbs, Mrs. E. N., New York, gift to Yale University, \$5000.
 Gill, Mary P., Harrods' Creek, Ky., gift to Louisville Woman's Club, \$20,000.
 Gilmore, W. C., Philadelphia, Pa., willed to charity, \$5000.
 Girls' Home, Brooklyn, N. Y., various donors, \$500,000.
 Glatfeld, Mrs. C. H., Gettysburg, Pa., gift to Gettysburg College, \$25,000.
 Goltier, Edward F., St. Louis, Mo., gift to Illinois College, \$50,000.
 Goodnow, Harriet E., Sterling, Mass., willed to charity, \$10,000; willed to Harvard University, \$100,000.
 Goodwin, Patrick, New York, willed to charities, \$6500.
 Gould, Helen, New York, gift to army-navy Y. M. C. A., \$30,000; gift to Y. W. C. A., Richmond, Va., \$20,000.
 Grant, Abraham, Kansas City, Mo., willed to Colored Educational Institutions, \$200,000.
 Greeley, Col., various donors to missions, \$53,000.
 Green, F. B., Boston, Mass., willed to Polytechnic Institute, \$600,000; willed to Radcliffe College, \$300,000.
 Greenbaum, Mrs. M. S., San Francisco, gift to hospital, \$20,000.
 Green, Mrs. Stephen, Orange, N. J., gift to Drew Theological Seminary, \$5000.
 Grinnell College, various donors, \$92,000.
 Hagerstown, Md., gift to library by William Kealhouer, \$25,000.
 Hahnemann Hospital, gift by Mrs. A. W. Phelps, Chicago, Ill., \$60,000; willed by Mitchell Valentine, New York, \$146,826.
 Hall, Evelyn S., Providence, R. I., willed to Northfield Seminary, \$18,000; willed to Wellesley College, \$5000.
 Hamberger, Philip, Pittsburgh, Pa., gift to Hebrew Orphanage, \$50,000.
 Hammon, Isaac, Greensburg, Kan., gift to Friends' University, \$36,000.
 Hampton Institute, willed by Alice M. Curtis, \$5000.
 Harriman Institute, willed by Lydia A. Barnard, \$25,000.
 Harriman, Mrs. E. H., New York, gift to education, \$80,000; gift for benefit of Southern Pacific Railway employees, \$50,000.
 Harris, N. W., gift to Chicago, Ill., Colored Y. M. C. A., \$25,000; gift to Y. M. C. A. hotel fund, \$50,000.
 Harvard Dental School, willed by John D. Bryant, \$10,000.
 Harvard University, willed by Lydia A. Barnard, \$161,000; gift by William C. Boyden, Chicago, Ill., \$100,000; gift by Adolphus Busch, \$100,000; willed by S. C. Lawrence, \$50,000; willed by Harriet E. Goodnow, \$100,000; gift by T. L. Park, \$26,914; gift by W. J. Riley, \$25,000; willed by Samuel H. Scudder, \$22,000; willed by Mrs. S. P. Sears, \$15,000; unnamed donor, \$25,000; unnamed donor, \$80,000; conditional gift, unnamed donor, \$30,000.
 Haseltine, Frank, Philadelphia, Pa., will to charity, \$30,000; will to University of Pennsylvania, \$10,000.
 Hastings College, gift by Cyrus McCormick, \$5000; gift by Mrs. Cyrus McCormick, \$10,000.
 Hathaway, E. E., Fall River, Mass., willed to charity, \$20,000.
 Houser, Norman, Franklin Grove, Ill., willed to Lombard College, \$10,000.
 Haverford College, willed by J. C. Strawbridge, \$10,000.
 Heath, Mary H., Brookline, Mass., will to charities, \$20,000.
 Hebrew Orphanage, gift by Philip Hamberger, \$50,000; other donors, \$15,000.
 Hebrew Union College, Cincinnati, O., gift by Jacob H. Schiff, \$30,000; gift by Joseph Rosenwald, \$50,000; gift by various donors, of New York, \$70,000.
 Heern, George O., New York, gift to Metropolitan Museum of Art, \$251,000.
 Heron, Belle, Montgomery, Ala., willed to Home Missions, \$13,000.
 Herrman, Esther, New York, willed to charities, \$6600.
 Herron, Catherine M., Philadelphia, Pa., willed to church, \$13,000.
 Hicks, Mrs. Allen A., Newbury, L. I., willed to charity, \$375,000.
 Highland College, gift by D. K. Pearsons, Chicago, Ill., \$10,000.
 Hill, James J., gift to church, \$50,000; gift to Jamestown, N. D., College, \$12,500.
 Hinsdale, Ill., gift of library site to town by D. K. Pearsons, \$35,000.
 Hobbs, James B., Chicago, Ill., gift to church, \$25,000; gift to Frances Willard National Temperance Hospital, \$25,000.
 Holland Hero Fund, gift by Andrew Carnegie, \$250,000.
 Holy Apostles, Church of, New York, various donors, \$70,000.
 Home Missions, willed by Belle Heron, \$13,000.
 Houston, Tex., library for colored people, gift by Andrew Carnegie, \$15,000.
 Howard Paine College, willed by Martha Monroe, \$8000.
 Howard, Frank T., New York, will to charity, \$65,000; will to Washington and Lee University, \$10,000.
 Howe, S. H., Marboro, Mass., willed to church, \$5000.
 Howell, Kate C., Hamilton, O., willed to charity, \$75,000; willed to church, \$60,000.
 Hubbard, Walter, Meriden, Conn., willed to

charity, \$75,000; willed to Wesleyan University, \$40,000.

Hull House, will by Mrs. J. T. Bowen, \$20,000. Humane Society, willed by E. B. Cooper, \$60,000; willed by Ellsworth B. Coysier, \$50,000.

Hunter, Mary A., Philadelphia, Pa., willed to charity, \$9800.

Huntington, Mrs. A. D., of New York, gift to S. Pacific Hospital, \$35,000.

Huntley, Frances J., Rochester, N. Y., gift to Y. W. C. A., \$5000.

Hurst, John R., Philadelphia, Pa., will to charity, \$16,000.

Illinois College, gift by Andrew Carnegie, \$75,000; gift by Edward F. Goitler, \$50,000; various donors, \$75,000.

Illinois, University of, willed by Anna Voodry, \$30,000.

Indiana University, gift by Mr. and Mrs. R. W. Long, \$225,000.

Indianapolis, Ind., gift to library by James Whitcomb Riley, \$75,000.

Inmen, Mrs. Lorain, Grand Rapids, Mich., gift to charity, \$5700.

Institute of Technology, gift of land by T. C. Dupont, \$500,000.

International Hospital, Kansas City, Mo., gift by R. A. Long, \$1,000,000.

Iowa Libraries, gift by Andrew Carnegie, \$154,000.

James, Mrs., Amherst, Mass., gift to Ooshishi College, Japan, \$100,000.

Jamestown, N. D., College, gift of James J. Hill, \$12,500; gift by unnamed donor, \$100,000; gift by unnamed donor, \$15,000.

Jewish Chatauqua Society, gift by Jacob H. Schiff, \$5000.

Jewish Home for Aged Men, Chicago, Ill., various donors, \$14,000.

Jewish Hospital, gift by Leon Mandel, \$50,000.

Jones, Mary E., Boston, Mass., will to charity, \$10,000.

Kansas City, Mo., will to Art Museum by Mary Atkins, \$300,000.

Kansas City Hospital, gift by R. A. Long, \$400,000.

Kealhouer, William, Hagerstown, Md., gift to library, \$25,000.

Keep, L. A., Chicago, Ill., willed to charities, \$16,000.

Kellog, Laurie M. B., Oakland, Cal., willed to Yale University, \$50,000.

Kennedy, Mrs. J. E., New York, gift to Mount Holyoke Seminary, \$100,000; gift to Northfield Seminary, \$50,000.

Kenny, Adelaide, Richmond, N. Y., gift to Y. M. C. A., \$3000.

Kenyon, Elizabeth C., New York, will to church, \$6000.

Killackey, Anna, Philadelphia, Pa., willed to charity, \$25,000.

King, Mary A., New York, will to church, \$5500.

Knox College, willed by Cornelia Dudley, \$20,000.

Lake Forest University, gift by Calvin Durand, \$5000.

Laconic Literary Institute, willed by Edwin C. Lewis, \$10,000.

Lake Forest College, various donors, \$100,000.

Lake Forest University, gift by R. W. Roloson, \$5000.

Lambert, Mary E., Philadelphia, Pa., willed to charity, \$100,000.

Lamson, Catharine, Waltham, Mass., will to charity, \$25,000.

Larkins, James, Philadelphia, Pa., willed to charity, \$5000.

Law and Order Society, willed by W. W. Charles, \$40,000.

Lawrence, Caroline E., White Plains, N. Y., willed to charity, \$30,000.

Lawrence College, unnamed donor, \$55,000.

Lawrence, S. C., Boston, Mass., will to charity, \$128,000; will to charity, \$25,000; will to Harvard University, \$50,000.

Lazarus, Aaron, Philadelphia, Pa., will to charity, \$12,000.

Leavenworth, Ellisha, Waterbury, Conn., willed to charities, \$500,000.

Legal Aid Society, Chicago, Ill., gift by W. R. Sterling, \$5000.

Leighton, Joseph W., Brookline, Mass., willed to charity, \$164,000.

Leipzig, University of, willed by Albert Lessel, \$25,000.

Leland Stanford Junior University, gift by

Thomas W. Sanford, \$50,000; gift by various donors, \$50,000.

Lerche, Elise, Hoboken, N. J., willed to charity, \$150,000.

Lessel, Albert, New York, willed to Yale University, \$25,000; willed to University of Leipzig, \$25,000.

Letchworth, Wm. P., of Buffalo, N. Y., willed to American Scenic and Historic Preservation Society, \$500,000; willed to charity, \$20,000.

Levy, James, Cincinnati, O., will to charity, \$9500.

Levy, Michael P., Baltimore, Md., willed to charity, \$165,000.

Lewis, Edwin C., will to Laconic Literary Institute, \$10,000.

Linscott, Alice C., Dorchester, Mass., willed to charity, \$15,000.

Lockwood, Lizzie D., New York, will to Columbia University, \$5000.

Lombard College, willed by Norman Hauser, \$10,000.

Long, Mrs. Henry, Montclair, N. J., gift to Art Museum, \$10,000.

Long, R. A., Kansas City, Mo., gift to Bethany College, \$25,000; gift for International hospital, \$1,000,000; gift to hospital, \$400,000.

Long, Mr. and Mrs. R. W., of Indianapolis, Ind., gift to Indiana University, \$225,000.

Loomis, Francis E., gift to Yale University, \$20,000.

Lord, Maria B., Wells, Me., willed to charity, \$17,000.

Los Angeles, Cal., gift of library by Andrew Carnegie, \$210,000.

Loudenslager, H. C., Camden, N. J., willed to charity, \$20,000; will to education, \$40,000; will to Yale University, \$40,000.

Louisville Woman's Club, gift by Mary P. Gill, \$20,000.

Lowenthal, Mamie, Chicago, Ill., willed to charities, \$18,000.

Lutheran Ministers' Pension Fund, various donors, \$100,000.

Lux, Mirando, San Francisco, Cal., will to California School of Mechanical Arts, \$1,000,000.

McCafferty, John, Philadelphia, Pa., will to charity, \$37,000.

McCarler, Henry, of New York, willed to church, \$13,000.

McCormick, C. H., of Chicago, Ill., gift to Y. M. C. A., \$50,000; gift to Hastings College, \$5000; gift to Colored Y. M. C. A., \$25,000; gift to Hastings College, \$10,000; gift to charity, \$60,000.

McCormick, H. F., Chicago, Ill., gift to Aero Club, \$28,000.

McCormick, Virginia, gift to Y. M. C. A., of Huntsville, Ala., \$10,000.

McCullough, Myrtle Reed, Chicago, Ill., conditional bequest to charity, \$125,000.

McCullough, W. G., Sewickley, Pa., gift to children's home, \$100,000.

McCullough, Wm. P., Wellsville, O., gift to children's home, \$250,000.

McCuster, Rose, Philadelphia, Pa., willed to church, \$40,000.

McEnhell, Annie, Philadelphia, Pa., will to charity, \$8000.

McFarley, Henry, Concord, N. H., willed to church, \$10,000.

McGuire, F. B., San Francisco, Cal., will to charity, \$25,000.

McKendree College, gift by D. K. Pearsons, \$10,000.

Mackay, Clarence H., gift to Nevada State University, \$250,000.

McKinley, W. B., Champaign, Ill., gift to church, \$30,000.

McLean, J. K., gift to Pacific Theological Seminary, \$18,000.

McVickar, W. N., of Philadelphia, Pa., willed to charity, \$10,000; willed to church, \$20,000.

Magee, Francis, Philadelphia, Pa., willed to charity, \$16,000; willed to church, \$21,000; willed to church, \$20,000.

Mandel, Leon, Chicago, Ill., will to charity, \$50,000; will to Jewish hospital, \$50,000.

Marble, Caroline S., Worcester, Mass., will to church, \$10,000.

Maria Mitchell Association, Vassar College, gift by Andrew Carnegie, \$10,000.

Marietta College, various donors, \$300,000.

Marsh, Helen A., New Haven, Conn., will to church, \$20,000; willed to Art school, \$10,000; willed to Moody School for Girls, \$10,000.

- Martin, Emilie D., New York, will to W. C. T. U., \$15,000.
- Massachusetts General Hospital, willed by Nathaniel Thayer, \$50,000.
- Massachusetts Institute of Technology, willed by Nathaniel Thayer, \$50,000.
- Matchett, Sarah A., Brookline, Mass., willed to charities, \$250,000.
- Mead, Elizabeth J., Stamford, Conn., willed to hospital, \$20,000.
- Mechanics' Institute, willed by Floris Armstrong, \$70,000.
- Merchendorff, Diedrich, St. Louis, Mo., will to charity, \$122,220; will to church, \$22,220; will to General Evangelical German College, \$50,000.
- Merritt, Paul A., Newburyport, Mass., will to charities, \$36,000.
- Metropolitan Museum of Art, by Phoebe L. Swords, \$50,000; willed by D. O. Mills, \$100,000; gift by George A. Heern, \$251,000.
- Meyers, Samuel, New York, willed to charity, \$55,000; willed to Union College, \$50,000.
- Middlesboro, Ky., gift of library by Andrew Carnegie, \$15,000.
- Milan, Ohio, gift of library by Andrew Carnegie, \$8,000.
- Miller, Thomas N., Pittsburgh, Pa., will to Woman's Hospital, \$1,800,000.
- Mills, D. O., San Francisco, Cal., will to Metropolitan Museum of Fine Arts, New York, \$100,000; will to American Museum of National History, \$100,000; will to New York Botanical Gardens, \$50,000; will to American Geographical Society, \$25,000.
- Michigan, University of, willed by Octavia W. Bates, \$25,000.
- Minneapolis, Minn., gift of site to Art Museum, by Clinton Morrison, \$400,000.
- Minneapolis, Minn., gifts to Art Museum, by W. H. Dunwoody, \$400,000; gifts to Art Museum, by various donors, \$400,000.
- Missionary Training School, willed by Sarah R. Sage, \$50,000.
- Missouri Historical Society, will by Hugh V. Washington, \$75,000.
- Mitchell, Mrs. Alfred, New London, Conn., gifts to hospital, \$60,000.
- Moir, Emily H., willed to Presbyterian Hospital, \$220,000; willed to charities, \$75,000; willed to college, \$320,000; willed to church, \$100,000.
- Monroe, Martha, Auxvasse, Mo., will to Central College, \$8,000; willed to Howard Paine College, \$8,000.
- Monroe Settlement, will by Mrs. P. A. Shaw, \$30,000.
- Monthly Meeting of Friends, willed by George M. Sharp, \$116,250.
- Montpelier College, gift by D. K. Pearsons, \$50,000.
- Moody Bible Institute, gift by various donors, \$20,000; gift by unnamed donors of Chicago, Ill., \$26,000.
- Moody School for Girls, willed by Helen A. Marsh, \$10,000.
- Mooney, Catherine, Philadelphia, Pa., willed to charity, \$20,000.
- Morgan, George H., Lenox, Mass., willed to charity, \$32,000.
- Morgan, J. Pierpont, gift to Aix le Daim Hospital, \$50,000.
- Morrison, Clinton, Minneapolis, Minn., gift of site to Art Museum, \$400,000.
- Morse, Godfrey, Boston, Mass., willed to charities, \$21,000.
- Mount Airy Theological Seminary, gift by Charles A. Schleren, Brooklyn, \$50,000.
- Mount Hermon School, gift by Mrs. A. F. Shaufler, \$75,000.
- Mt. Holyoke Seminary, willed by Sarah R. Sage, \$50,000; gift by Mrs. J. E. Kennedy, \$100,000.
- Mt. Vernon Hospital, gift by A. S. Cochran, \$16,000; other donors, \$100,000.
- Mulvill, Ellen, Chicago, Ill., will to church, \$13,000.
- Myer, Daniel, San Francisco, Cal., will to charities, \$73,750.
- Myers, George H., Washington, D. C., gift to Yale University, \$15,000.
- Nashota College, willed by Mary L. Peabody, \$25,000.
- National Audubon Association, gift by Mrs. Russell Sage, \$50,000.
- Naylor, Elizabeth A., Philadelphia, Pa., will to charity, \$5,000.
- Nesmith, W. L., Salina, Kan., gift to church \$10,000.
- Neushadt, Agnes, New York, gift to charity, \$25,000.
- Nevada State University, gift by Clarence H. Mackay, \$250,000.
- Newberry Library, gift of historical documents by Edward E. Ayre, \$400,000.
- New German Hospital, Chicago, Ill., various donors, \$250,000.
- New Haven, Conn., willed to Art School by Helen A. Marsh, \$10,000.
- New London, Conn., gifts to hospital by Mrs. Alfred Mitchell, \$50,000.
- New York, gift to charity by various donors, \$50,000.
- New York Botanical Gardens, willed by D. O. Mills, \$50,000.
- New York City, gift of park by Julia J. Taylor, \$1,000,000.
- New York City College, gift by J. R. Steers, \$50,000.
- New York Hospital Association Fund, gift by various donors, \$22,000.
- New York Museum of Art, will by Joseph Pulitzer, \$500,000.
- New York Philharmonic Society, willed by Joseph Pulitzer, \$500,000.
- New York Public Library, gift by Andrew Carnegie, \$375,000.
- Nickerson, Mrs. M. L., Pittsfield, Mass., to church, \$30,000; will to charity, \$75,000.
- Northfield Seminary, willed by Lydia A. Barnard, \$60,000; gift by Mrs. J. E. Kennedy, \$50,000; gift by C. M. Bailey, \$25,000.
- Norristown, Pa., willed to church by Susan Fisher, \$15,000.
- Northland College, gift by D. K. Pearson, \$10,000.
- Northwestern University, gift by E. H. Gary, \$60,000; gift by James A. Patten, Chicago, Ill., \$50,000.
- Norwegian Hospital, Brooklyn, N. Y., gift by Jens Skoogard, \$15,000.
- Norwegian Hero Fund, gift by Andrew Carnegie, \$120,000.
- Oberlin College, gift by various donors, \$70,000.
- O'Brien, Elizabeth, Philadelphia, Pa., will to church, \$69,000.
- Occidental College, gift by Mrs. F. B. Swan, \$50,000.
- Ogleby, E. W., and Cochrane, M. M., gift to Bethany College, \$150,000.
- Oliver, Charles, Philadelphia, Pa., willed to charity, \$15,000.
- Ooshishi College, Japan, gift by Mrs. James, \$100,000.
- Osborne, Eliza W., Auburn, N. Y., will to charities, \$265,000.
- Osteopathic Hospital, Boston, Mass., gift by unnamed donor, \$100,000.
- Pacific Theological Seminary, gift by J. K. McLean, \$18,000.
- Page Calvin, and heirs of Mills, D. O., gift to St. Luke's Hospital, San Francisco, Cal., \$1,000,000.
- Pan-American Building, additional gift by Andrew Carnegie, \$100,000.
- Park College, various donors, \$30,000.
- Park, T. L., Boston, Mass., gift to Harvard University, \$26,914.
- Parker, Joseph, New York, willed to Yale University, \$10,000; gift to Yale University, \$10,000.
- Patten, J. A., Evanston, Ill., gift to Frances Juvenile Home, \$25,000; gift to Y. M. C. A., \$75,000.
- gift to church, \$10,000; gift to Northwestern University, \$50,000.
- Pattison, Sarah H., Ossining, N. Y., will to Williams College, \$100,000.
- Patton, C. C., Strong City, Kansas, gift to church, \$5,000.
- Paulson, Nils, New York, gift to Scandinavian American Association, \$100,000.
- Peabody, Mary L., of Boston, Mass., willed to Nashota College, \$25,000; willed to charity, \$232,000; willed to church, \$446,000.
- Peabody Museum, Salem, Mass., willed by Charles G. Weld, \$25,000.
- Pearsons, D. K., Chicago, Ill., gift to American Board Foreign Missions, \$100,000; gift of library site to Hinsdale, Ill., \$35,000; gift to the City Missionary Society, \$50,000; gift to Berea College, \$100,000; gift to McKendree College, \$10,000; gift to charity, \$45,000; gift to Highland College, \$10,000; gift to Northland College, \$10,000; gift to Doane College, \$25,000; gift to Montpelier College, \$50,000.

Peel, James G., Philadelphia, Pa., willed to charity, \$5000.
 Penn College, Oklahoma, various donors, \$200,000.
 Peking, China, Y. M. C. A., gift by John Wana-maker, \$60,000.
 Perkins, Edward T., Philadelphia, Pa., gift to Williams College, \$25,000.
 Perry, Mary E. W., of Newport, R. I., willed to charity, \$9000; willed to church, \$65,000; willed to Bowdoin College, \$10,000; willed to church \$10,000.
 Peters, Mrs. Richard, willed to University of South, \$5000.
 Peterson, Georgiane H., Philadelphia, will to charities, \$20,000.
 Peyton, Hester B., Philadelphia, Pa., willed to church, \$8000.
 Phelps, Mrs. A. W., Chicago, Ill., gift to Hahnemann Hospital, \$60,000.
 Phelps-Stokes Fund, Trustees of, gift to University of Virginia, \$12,000.
 Philadelphia, Pa., gift to hospital by William Bonsall, \$80,000; Firemen's Fund, gift by E. T. Stotesbury, \$25,000.
 Phillips Exeter Academy, various donors, \$350,000; willed by Oliver S. Pinger, \$5000.
 Philadelphia College of Pharmacy, gift by unnamed donor, \$1,000,000.
 Phipps, Henry, gift to Pittsburgh Tuberculosis Hospital, \$35,000.
 Pinger, Oliver S., of Boston, Mass., willed to Phillips Exeter Academy, \$5000.
 Platt, George, willed to charities, \$100,000.
 Pitt, Mrs. W. H., Friendship, N. Y., will to library, \$15,000.
 Pittsburgh Tuberculosis Hospital, gift by Henry Phipps, \$35,000.
 Pittsburgh, Pa., Children's Hospital, gift by various donors, \$60,000.
 Plant, Morton F., New London, Conn., gift to Thames College for Women, \$1,000,000.
 Plympton, G. A., of Buffalo, gift to Buffalo General Hospital, \$5000.
 Polytechnic Institute, willed by F. B. Green, \$600,000.
 Port Arthur, Texas, willed by John W. Gates, \$1,225,000.
 Portland, Me., gift of organ to auditorium by Gen. H. K. Curtis.
 Poughkeepsie Hospital, gift by Mrs. S. W. Bowne, \$50,000.
 Presbyterian College, Emporia, Kansas, various donors, \$300,000.
 Presbyterian Hospital, New York, willed by Emily H. Moir, \$220,000.
 Princeton University, additional gift by Mrs. Russell Sage, \$65,000.
 Providence, R. I., library willed by O. H. Arnold, \$5000; gift to public library by Nicholas Sheldon, \$10,000.
 Public Bath Commission, gift by Henry Walters, \$15,000.
 Pulitzer, Joseph, New York, will to Columbia College, \$2,250,000; will to New York Museum of Art, \$500,000; will to New York Philharmonic Society, \$500,000; will to Barnard College, \$1,000,000; will to city improvements, \$75,000.
 Radcliffe College, willed by Alice M. Curtis, \$25,000; willed by Lydia A. Barnard, Milton, Mass., \$125,000; willed by F. B. Green, \$300,000.
 Ralston, William L., willed to Rescue Mission, \$50,000.
 Randall, Mrs. A. H., San Jose, Cal., will to Children's Home, \$20,000.
 Randolph and Macon College, various donors, \$100,000.
 Reading & Jersey Central Railroad Company, gift to charity, \$10,000.
 Reakert, Elizabeth C., Philadelphia, Pa., willed to charity, \$20,000.
 Redding, Henry, Sioux City, Ia., willed to Tuskegee Institute, \$30,000.
 Red Cross Guild Hospital, gift by Mrs. Whitelaw Reid, \$60,000.
 Reid, Mrs. Whitelaw, gift to Red Cross Guild Hospital, \$60,000.
 Rescue Mission, willed by William L. Ralston, \$50,000.
 Rhinelander, Mary, of New York, willed to churches, \$1,500,000.
 Richards, Mary D., of St. Louis, Mo., will to Old Ladies' Home, \$5000.
 Richardson, Moses W., Boston, Mass., willed to Boston Art Club, \$5000; will to church, \$50,000; will to charity, \$50,000.

Riley, W. J., Boston, Mass., gift to Harvard University, \$25,000.
 Riley, James Whitcomb, Indianapolis, Ind., gift to library, \$75,000.
 Ritchie, Arthur, New York, will to church, \$15,000.
 Robert, Mrs. E., New York, will to hospital, \$7000.
 Rockefeller, John D., New York, gift to Rockefeller Institute of Research, \$1,000,000; gift to Industrial League, Brantford, Ont., \$10,000.
 Rockefeller Institute of Medical Research, gift by John D. Rockefeller, \$1,000,000.
 Roloson, R. W., Chicago, Ill., gift to Lake Forest University, \$5000.
 Rosenwald, Joseph, of Chicago, Ill., gift to Hebrew Union College, Cincinnati, \$50,000.
 Rosenwald, Julius, gift to Y. M. C. A. Hotel Fund, \$50,000; gift for Chicago, Ill., Colored Y. M. C. A., \$25,000; gift to Philadelphia Y. M. C. A., \$25,000; gift to Fisk University, \$12,500.
 Rutland, Vt., Hospital, willed by Mrs. C. B. Denton, \$50,000.
 Rutledge, Edward, Jr., Chippewa Falls, Wis., will to charity, \$1,200,000.
 Ryan, James J., Philadelphia, Pa., gift to Washington Catholic University, \$50,000.
 Sackett, Florence A., Cincinnati, O., will to charity, \$300,000.
 Sage, Mrs. Russell, additional gift to Princeton University, \$65,000; gift to charity, \$25,000; gift to National Audubon Association, \$5000; gift to Cornell University, \$800,000.
 Sage, Sarah R., Boston, Mass., willed to church, \$78,000; willed to charity, \$8000; willed to Atlanta Theological Seminary, \$8000; willed to Mt. Holyoke Seminary, \$5000; willed to Wells College, \$5000; willed to Missionary Training School, \$5000.
 St. Albans, Me., gift to town by D. D. Stewart, \$7000.
 St. Lawrence University, various donors, \$150,000.
 St. Louis, Mo., gift to hospital by Shoenberg Bros., \$20,000; Old Ladies' Home, willed by Mary D. Richards, \$5000.
 St. Luke's Hospital, N. Y., will by Phoebe L. Swords, \$41,000.
 St. Luke's Hospital, San Francisco, Cal., gift by heirs of Calvin Page and D. O. Mills.
 St. Paul, Minn., various donors, to tuberculosis crusade, \$15,000.
 St. Paul, Minn., gift for library building by D. C. Shephard, \$100,000.
 St. Paul's Boys' School, will by J. M. Thomas, \$8000.
 St. Xavier College, willed by Henry Van Rensselaer, \$10,000.
 Salem (N. C.) College, various donors, \$200,000.
 Sample, Magdalene, Chicago, will to charity, \$7000.
 Sanford, Thomas W., Melbourne, Australia, gift to Leland Stanford Junior University, \$50,000.
 San Jose, Cal., Children's Home, willed by Mrs. A. H. Randall, \$20,000.
 San Jose, Cal., gift to church, various donors, \$115,000.
 Saratoga National Park Commission, gift by R. A. Canfield, \$5000.
 Saunders, Ebenezer L., Methuen, Mass., willed to church, \$6600; willed to charities, \$10,000.
 Saunders, Mrs. Leslie, Yonkers, N. Y., gift to charity, \$35,000.
 Scandinavian American Association, gift by Nels Paulsen, \$100,000.
 Schallercross, A. C., Philadelphia, Pa., willed to charity, \$10,000.
 Scheffel, Adolph, New York, will to charity, \$28,000.
 Schieren, Charles A., Brooklyn, gift to Mount Airy Theological Seminary, \$50,000.
 Schiff, Jacob H., of New York, gift to Hebrew Union College, Cincinnati, \$30,000; gift to Jewish Chautauqua Society, \$5000.
 Schnell, Ellen A., Hyde Park, Mass., willed to charity, \$9000.
 Schoellkopf, Henry, Chicago, Ill., gift to charities.
 School of Design, will by Cora L. Barnes, \$10,000.
 Schule, Valeria, Philadelphia, Pa., will to church, \$8000.
 Scudder, Samuel H., Cambridge, Mass., willed to Harvard University, \$22,000.
 Sears, Nathaniel C., Chicago, Ill., gift to Elgin Academy, \$10,000.
 Sears, Mrs. S. P., Boston, Mass., willed to

charity, \$15,000; will to Harvard University, \$15,000.
 Sebastopol, Cal., gift of library by Andrew Carnegie, \$7500.
 Sellers, T. J., Montclair, N. J., gift to church, \$55,000.
 Shanley, John, Fargo, North Dak., willed to church, \$220,000.
 Sharp, George M., Baltimore, Md., willed to Monthly Meeting of Friends, \$116,250.
 Sharkles, P. M., of Westchester, Pa., gift to Swarthmore College, \$50,000.
 Sharpless, Lella H., Philadelphia, Pa., will to charity, \$5000.
 Shauffler, Mrs. A. F., New York, gift to Mount Hermon School, \$75,000.
 Shaw, Elizabeth, Dixon, Ill., willed to Dixon Hospital, \$30,000.
 Shaw, Mary B., Chester, Pa., will to charity, \$5000.
 Shaw, Mrs. P. A., Boston, Mass., gift to Monroe Settlement, \$30,000.
 Sheldon, Nicholas, Providence, R. I., gift to public library, \$10,000.
 Shepard, E. M., New York, will to church, \$11,000.
 Shepherd, D. C., of St. Paul, Minn., gift for library building, \$100,000.
 Sherman, Texas, gift of library by Andrew Carnegie, \$50,000.
 Shoenberg Bros., St. Louis, Mo., gift to hospital, \$20,000.
 Shreveport, La., various donors to church, \$55,000.
 Skiff, Margaret T., Rockford, Ill., willed to charity, \$8000.
 Skoogard, Jens, gift to Norwegian Hospital, Brooklyn, N. Y., \$15,000.
 Slimmer, Abraham, gift to hospital, Waverly, Ia., \$50,000.
 Sloane, William, of New York, gift to Amsterdam Hospital, \$25,000.
 Small, Miss A. M., York, Pa., willed to charity, \$10,000; willed to church, \$20,000.
 Smith, Hugh O., Denver, Col., willed to charity, \$70,000.
 Smith, Sylvester T., Chicago, Ill., willed to charity, \$12,500.
 Smith, W. D., Reading, Pa., will to charities, \$42,000.
 Smith, Mrs. W. Van Rensselaer, New York, gift to church, \$100,000.
 Smith, W. W., Poughkeepsie, N. Y., gift to Y. W. C. A., \$30,000.
 Somerville, Mass., willed to library by Nathan J. Davis, \$10,000.
 Southboro, Mass., willed to hospital by Charles F. Choate, \$5000.
 Southern Pacific Railway Employees, benefit for, gift by Mrs. E. H. Harriman, \$50,000.
 Southmayd, Charles F., New York, will to charity, \$17,000.
 South, University of the, will by Mrs. Richard Peters, Atlanta, Ga., \$5000.
 Sowden, A. J. C., Boston, Mass., willed to charity, \$15,000.
 S. Pacific Hospital, gift by Mrs. A. D. Huntington, \$35,000.
 Staaffer, W. A., willed to Reading, Pa., W. C. T. U., \$20,000.
 Stanford, W. H., New York, will to charity, \$6000.
 Steers, J. R., New York, gift to New York City College, \$5000.
 Sterling, W. R., of Chicago, Ill., gift to Legal Aid Society, \$5000.
 Stewart, D. D., of St. Albans, Me., gift to town, \$7000.
 Stewart, Lisenard, New York, gift to charities, \$65,000; gift to church, \$25,000; gift to Zoological Society, \$10,000.
 Stillwell, Helen M., Whitefield, N. H., will to charity, \$5000.
 Stotesbury, E. T., Philadelphia, Pa., gift to Firemen's Fund, \$25,000.
 Strawbridge, J. C., Philadelphia, Pa., willed to Bryn Mawr College, \$10,000; willed to Haverford College, \$10,000.
 Strong City, Kansas, gift to church by C. C. Patton, \$5000.
 Strong, H. A., Rochester, N. Y., gift to Y. M. C. A., \$60,000.
 Strong, Henry, Chicago, will to education, \$1,500,000.
 Swan, Mrs. F. B., of Pasadena, Cal., gift to Occidental College, \$50,000.

Swarthmore College, unnamed donor, \$200,000; gift by P. M. Sharples, \$50,000; gift by Mrs. Agnes Bergstadt, \$25,000.
 Sweden Hero Fund, gift by Andrew Carnegie, \$250,000.
 Swords, Phoebe L., New York, will to St. Luke's Hospital, \$41,000; will to charity, \$11,000; will to Metropolitan Museum of Art, \$5000.
 Tag day, Chicago, gifts to hospitals, \$55,367.
 Taylor, Clara B., San Francisco, Cal., will to charities, \$10,000.
 Taylor, Julia J., Cobatt, Conn., gift of park to New York City, \$1,000,000.
 Teller, Sarah A., New York, will to charity, \$10,000.
 Thames College for Women, gift by Morton F. Plant, \$1,000,000.
 Thayer, Nathaniel, Lancaster, Mass., willed to Boston Art Museum, \$250,000; willed to Massachusetts Institute of Technology, \$50,000; willed to Massachusetts General Hospital, \$50,000.
 Thomas, J. M., of Baltimore, Md., willed to St. Paul's Boys' School, \$8000.
 Thome, Phoebe A., New York, willed to Bryn Mawr College, \$150,000.
 Thompson, Caroline C., Bridgeport, Conn., willed to charity, \$25,000.
 Thompsonville, Conn., library, gift by Andrew Carnegie, \$7500.
 Throop Polytechnic Institute, Pasadena, Cal., gift by various donors, \$250,000.
 Timme, Eliza, New York, will to German Hospital, \$10,000.
 Tooker, Nathaniel, Newark, N. J., willed to charities, \$70,000.
 Topeka Industrial Institute, unnamed donor, \$5000; gift by Andrew Carnegie, \$10,000.
 Topliff, Elijah M., Manchester, N. H., will to Dartmouth College, \$200,000.
 Transylvania College, gift by W. P. Bowen, \$15,000; other donors, \$6000.
 Trinity College, gift by J. B. Durham, \$50,000.
 Tuskegee Institute, willed by Alice M. Curtis, \$5000; willed by Lydia A. Barnard, \$25,000.
 Sioux City, Ia., willed by Henry Redding, \$30,000.
 Uhler, G. H. S., of Philadelphia, Pa., gift to charity, \$5500.
 Union College, willed by Samuel Meyers, \$5000.
 University of Pennsylvania, will by Frank Haseltine, \$10,000.
 Valentine, Mitchell, New York, will to Hahne-mann Hospital, \$1,146,826.
 Van Rensselaer, Henry, New York, willed to St. Xavier College, \$10,000.
 Various donors, Minneapolis, Minn., gifts to Art Museum, \$400,000.
 Various donors, gift to Colored Y. M. C. A., Chicago, Ill., \$66,000.
 Various donors, to Wooster University, \$450,000.
 Vassar College, gift by alumnae, \$50,000.
 Venn, Clement, Chicago, Ill., will to church \$5000.
 Vermont Academy, gift by Willard Crane, \$5000.
 Virginia, University of, gift by Trustees of Phelps-Stokes Fund, \$120,000.
 Voodrey, Anna, Bloomington, Ill., will to University of Illinois, \$30,000.
 Wadsworth, Dr. O. F., Boston, Mass., will to Boston Medical Library, \$12,000.
 Walker, T. B., Minneapolis, Minn., gift to Y. M. C. A., \$100,000.
 Walker, T. B., Minneapolis, Minn., gifts to Y. M. C. A., \$100,000.
 Walsh estate, New Haven, Conn., gift to Yale University, \$20,000.
 Walters, Henry, Baltimore, Md., gift to Public Bath Commission \$15,000.
 Wanamaker, John, gift to Y. M. C. A. at Peking, China, \$60,000.
 Washington and Lee University, willed by Frank T. Howard, \$10,000.
 Washington Catholic University, gift by James J. Ryan, \$50,000.
 Washington, Hugh V., Macon, Ga., will to Daughters of American Revolution, \$75,000; will to Missouri Historical Society, \$75,000.
 Waterbury, Conn., willed to charities by Elisha Leavenworth, \$500,000.
 Waverly, Ia., gift to hospital by Abraham Slimmer, \$50,000.
 Weld, Charles G., Newport, R. I., willed to Peabody Museum, Salem, Mass., \$25,000; willed to charities, \$125,000.
 Weld, G. W., Boston, Mass., will to charity, \$105,000.

Wellesley College, willed by Evelyn S. Hall, \$5000.

Wells College, willed by Sarah R. Sage, \$5000.

Wells, Mrs. Benjamin, New York, willed to charity, \$30,000.

Wellsville, Ohio, gift to Children's Home by William P. McCullough, \$250,000.

Wesleyan University, willed by Walter Hubbard, \$40,000.

Wesson, S. B., estate of, gift to Connecticut Valley Historical Society, \$1,000,000.

Wheaton College, gift by J. F. Eberhart, \$5000; various donors, \$75,000.

White, Mary, Boston, Mass., willed to charity, \$10,500.

Whitney, Isabelle, New York, will to church, \$15,000.

Widener, P. A. B., of Philadelphia, Pa., gift to charity, \$500,000.

Wilkes, Florence H., New York, willed to charity, \$32,000.

Williams College, gift by estate of Mrs. H. Curtis, \$35,000.

Williams and Vashlt Colleges, various donors, \$100,000; Sarah H. Pattison, Ossining, N. Y., \$100,000; gift by Edward T. Perkins, \$25,000.

Wilson, Mehtable, C. C., Cambridge, Mass., willed to charity, \$250,000.

Winthrop, H. R., of New York, gift to Yale University, \$5000.

Witham, W. S., Atlanta, Ga., gift to schools, \$5000.

Woerrshoffer, Emma C., New York, will to Bryn Mawr College, \$750,000.

Woman's Hospital, Pittsburgh, Pa., willed by Thomas N. Miller, \$1,800,000.

W. C. T. U., willed by A. C. Arnold, Battle Creek, Mich., \$10,000; willed by Emilie D. Martin, \$15,000; willed by W. A. Staaffer, \$20,000.

Wood, John D., Pasadena, Cal., willed to charity, \$165,000.

Wooster University, gift by various donors, \$450,000.

Worcester, Mass., willed to church by Caroline S. Marble, \$10,000.

Worthington, Amella, Pittsfield, Mass., gift to church, \$275,000.

Wright, Charlotte L., Georgetown, Mass., will to church, \$5000.

Yale Forestry School, gift by unnamed donor, \$100,000.

Yale University, various donors, \$136,000; H. C. Loudenslager, \$40,000; gift by Mrs. F. C. Farwell, \$25,000; unnamed donor, \$10,000; gift by Walsh estate, \$20,000; gift by George H. Myers, Washington, D. C., \$15,000; other donors, \$197,000; gift by Francis E. Loomis, \$20,000; willed by Albert Lessel, \$25,000; gift by Joseph Parker, \$10,000; willed by Joseph Parker, \$10,000; gift by Mrs. E. N. Gibbs, \$5000; gift by H. R. Winthrop, \$5000; various donors, \$10,000; willed by Lawrie M. B. Kellogg, Oakland, Cal., \$50,000.

Yarnall, E. H., of New York, willed to church, \$200,000.

Y. M. C. A., gift by Adelaide Kenny, \$8000; gift by J. P. Crozer, \$10,000; will by W. V. Brown, \$40,000; James A. Patten, \$25,000; gift by Virginia McCormick, \$10,000; gift by two unnamed donors, \$60,000; various donors, \$24,036; gift by C. H. McCormick, \$50,000; gift by Mrs. T. J. Emery, \$225,000; various donors, \$216,964; various donors, \$55,000; gift by various donors, \$100,000; various donors, \$300,000; various donors, \$10,000; gift by James A. Patten, \$50,000; gift by H. A. Strong, \$60,000; gift by James Dysart, \$15,000; gift by Julius Rosenwald, \$25,000; various donors, \$50,000; gift by various donors, \$5000; gift by G. W. Elkins and sister, \$880,000; gift by various donors, \$880,000; gift by T. B. Walker, \$100,000; various donors, \$150,000; various donors, \$500,000.

Y. M. C. A., Army and Navy, gift by Helen Gould, \$30,000.

Y. M. C. A., Colored, Washington, D. C., various donors, \$100,000.

Y. M. C. A. Hotel Fund, gift by Julius Rosenwald, \$50,000; gift by N. W. Harris, \$50,000.

Y. W. C. A., gift by Frances J. Huntley, \$5000; gift by W. W. Smith, \$30,000; gift by Helen Gould, \$20,000.

Zoological Society, gift by Lisperard Stewart, \$10,000.

GILBERT, Sir WILLIAM SCHWENCK. An English humorist and librettist, died May 29, 1911. He was born in London in 1836. He was educated at Great Ealing and at King's College of the University of London. His intention was to go to Oxford, but instead he took the examination for a commission as officer in the Crimean War. The war came to a close before he could see service and in 1857 he took his examination for a clerkship in the Privy Council Office. He held this position for four years until the receipt of a small legacy enabled him to set up as a barrister. His first writing was the translation of a song for Madame Parepa Rosa, which was published in 1858 on a concert programme. In 1881 he contributed a drawing and a humorous article to the magazine *Fun*. This at once attracted attention and brought him the invitation to become a regular member of the staff. He continued to contribute to this and other periodicals while still practicing law. His earnings from his writings soon became so much greater than the returns from his legal practice that he gave up the law. Among his other literary work was included dramatic criticism, and this brought him into contact with the people of the theatre. An opportunity came to him for the writing of a Christmas burlesque for Miss Herbert, who was at that time manager of the St. James Theatre. He selected a burlesque on Donizetti's opera *L'Elisir d'Amore*, which was at that time very popular. The work was completed in ten days and was entitled *Dulcamara, or The Little Duck and the Great Quack*. This was successful, and it was followed by a burlesque on the same composer's *The Daughter of the Regiment*, with John Toole in the principal rôle. Following this came the *Merry Zingara*, a burlesque on *The Bohemian Girl*. By the successes of these pieces Gilbert's reputation became so well established that he was invited to write the work that opened the New Gaiety Theatre. He selected a burlesque of *Robert the Devil*. His first comedy, *An Old Score*, followed this and was also successful. A burlesque on Tennyson's *Princess* in blank verse was hardly as successful as his previous productions. With *The Palm of Truth*, 1870, he came into the field in which his widest success has been attained. This piece, adapted from the French for the Haymarket Theatre, had a run of 150 nights. It was followed in 1871 by *Pygmalion and Galatea*. For a time he abandoned the writing of opera librettos for the production of comedy. *The Wicked World* was given in 1873, *Charity* in 1874, *Broken Hearts* in 1876, *On Guard* and *Gretchen* in 1879. Gilbert's world-wide fame dates from his collaboration in the writing of comic operas with Sir Arthur Sullivan. The first of these was a burlesque called *Thespis, or The Gods Grown Old*. Then came *Trial by Jury* and this was followed by a succession of operas, which established the reputation of their writers throughout the English-speaking world. These included *The Sorcerer*; *H. M. S. Pinafore*; *The Pirates of Penzance*; *Patience*; *Iolanthe*; *Princess Ida*; *The Mikado*; *Ruddigore*; *The Yeoman of the Guard*; *The Gondoliers*; *Utopia Limited*; *His Excellency*; and *The Grand Duke*. The production of *Pinafore* marked an epoch in comic opera in English, while *The Mikado* was probably the most successful light opera ever produced in the English language. *Pinafore*

was produced in New York for the first time in 1879. All the other operas were produced in the United States after their English success. The collaboration between Gilbert and Sullivan was brought to an end as the result of a quarrel in relation to a trivial business matter. The music for *His Excellency* was written by Osmund Carr and for *The Chieftain* by F. C. Burnand. In 1894 there was a reconciliation, but their work had lost its first inspiration and the best of it had already been done. Gilbert's later writings were not strong in the possession of the humor so characteristic of his early plays and librettos. Few of the plays written after the death of Sir Arthur Sullivan were brought to the United States. His humor is perhaps best shown in the famous book of nonsense verses, *Bab Ballads*. In addition to the plays already mentioned he wrote *Dan'l Druse; Sweethearts; and Engaged*. He also adapted two novels, *Great Expectations*, and *Ought We to Visit Her?*, and took three farces from the French. For many years before his death, Gilbert occupied a beautiful country home in Middlesex, in which county he was a deputy lieutenant. He came to his death by drowning while attempting to save the life of a young woman.

GILMAN, CHARLOTTE PERKINS. See LITERATURE, ENGLISH AND AMERICAN, *Political and Social Science*.

GILROY, THOMAS F. An American public official, former mayor of New York City, died December 1, 1911. He was born in 1840, in Sligo, County Sligo, Ireland. His father having died, he was brought to America by his mother at the age of six years. He attended the common and high schools of New York City and was then apprenticed to a printer. After five years he obtained a place as clerk in the city government, where he remained for three years. He became active in politics and joined the Tammany Hall organization. After holding various public offices in New York City he was, in 1892, nominated for mayor against Edward Einstein, and was elected by a majority of over 70,000 votes. During his administration the famous Lexow investigation into the administration of the city government was carried on. After the expiration of his term of office he became interested in various financial institutions, including several banks. In 1891 he was Grand Sachem of the Tammany Society.

GIPSY MOTH. See ENTOMOLOGY.

GIRARD. See KANSAS.

GIULIO CESARE. See BATTLESHIPS.

GLACIER NATIONAL PARK. See EXPLORATION.

GLACIERS. See GEOLOGY.

GLASGOW. See ARCHITECTURE.

GLASGOW, ELLEN. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

GLASS, MONTAGUE. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

GLICK, GEORGE WASHINGTON. An American public official, formerly governor of Kansas, died April 13, 1911. He was born in Fairfield county, Ohio, in 1827, and was educated at Central College, Ohio. He was admitted to the bar in 1850, and for several years practiced in Ohio. He served for a short time in the Civil War and from 1867 to 1874 was attorney for the Union Pacific Railroad. He was a member of the Kansas legislature for seven terms and in 1883 was elected governor of the State.

He was a commissioner to the Centennial, Chicago, and St. Louis expositions.

GOAT FEVER. See MALTA FEVER.

GOETHALS, GEORGE W. See PANAMA CANAL.

GOLD. The total production of gold in the United States in 1910 was 4,657,018 fine ounces, valued at \$96,269,100, a decrease as compared with the output in 1909 of 164,683 ounces in quantity and of \$3,404,300 in value. The output was, however, next to the record production of 1909, the largest in the history of the country. This gold was produced in twenty-two States and Territories and in the Philippine Islands and Porto Rico. The gold mining industry was fairly active in 1910 as in 1909 notwithstanding the decreases in the output. In Alaska the decline in gold was chiefly from the Fairbanks district and in the Yukon basin, where exhaustion of the high grade levels has been expected. Colorado stood first in 1910 as a producer of gold. The output from that State was 992,969 fine ounces, valued at \$20,526,500. California was second with only slightly decreased production, 988,853 fine ounces, valued at \$20,441,400. Nevada was a close third with 913,015 fine ounces, valued at \$18,873,700.

The value of the gold produced in the various States and Territories in 1910, and 1911 preliminary, as estimated by the director of the mint, will be found in the following table:

	1911		1910	
	Fine ozs.	Value	Fine ozs.	Value
Alabama ..	887	18,335	1,592	32,900
Alaska ...	774,144	16,002,978	787,148	16,271,800
Arizona ...	142,938	2,954,790	165,114	3,413,200
California ..	982,544	20,310,987	988,853	20,441,400
Colorado ...	926,658	19,153,860	992,969	20,526,500
Georgia ...	1,477	30,532	1,161	24,000
Idaho	56,563	1,163,261	50,112	1,035,900
Illinois ...	280	5,788	.....	.....
Michigan ..	1	20	.....	.....
Maryland ..	1	20	.....	.....
Montana ...	153,341	3,169,840	179,975	3,720,400
Nevada ...	917,605	18,968,578	913,015	18,873,700
New Mexico ..	30,955	639,897	23,085	477,200
N. Carolina ..	3,710	76,693	3,120	64,500
Oklahoma ...	1,485	30,698	.....	.....
Oregon ...	28,988	599,235	32,963	681,400
Penns.	378	7,814	.....	.....
Philippines ..	6,313	130,501	7,469	154,400
Porto Rico ..	106	2,191	48	1,000
S. Carolina ..	650	13,437	1,829	37,800
S. Dakota ...	359,444	7,430,367	260,267	5,380,200
Tennessee ...	684	14,140	135	2,800
Texas ...	67	1,178	19	400
Utah	227,834	4,709,747	208,627	4,312,700
Virginia ...	208	4,300	44	900
Wash'ton ...	24,407	504,537	38,990	806,000
Wyoming ...	909	18,791	198	4,100
Misc.	12,820	265,013	.....	.....
Total ...	4,655,297	\$96,233,528	4,657,018	\$96,269,100

The most notable features of the industry in 1911, according to the United States Geological Survey, were the resumption of normal labor conditions in the Black Hills of South Dakota, the increased dredge output in California, the development of production in the new Innokoditarod placer region of Alaska and the Republic district of Washington, continued development and prosperity of the great Goldfield, Nevada, and Treadwell, Alaska, mines; improvement in metallurgical methods and general increase in activity at many small deep and placer mines. Renewed interest in prospecting was shown in Colorado, although the gold output of the State decreased owing to the gradual ex-

haution of several large ore bodies and to continued decrease in production from the great Cripple Creek camp. See METALLURGY.

GOLD COAST. A British crown colony and protectorate on the west coast of Africa. Area of the colony and the protectorate, with Ashanti, about 82,000 sq. miles. Population (April 2, 1911), 1,502,899 (colony, 857,516; Ashanti, 287,814; Northern Territories, 357,510). Europeans, about 1000. Capital, Accra (17,892 inhabitants). Pupils enrolled in government and mission schools (1909), 16,711; government grant, £6387. The natives are mostly pagans. Palm oil, palm kernels, cacao, rubber, and valuable timbers are produced. Gold output (1909), 230,494 ounces (£979,074). Imports (1909), £2,394,412 (textiles, alcohol, and hardware); exports, £2,655,573 (gold, £790,329; rubber, £358,876; palm kernels, £185,058; palm oil, £161,388; cacao, £866,571). Imports 1910, £3,439,831; exports, £2,697,706. Revenue (1910), £1,006,633; expenditure, £924,862. Railways open, 168 miles (under construction, 60). Telegraph lines, 1363 miles. Governor, (1911), James Jameson Thorburn.

ASHANTI. Chief town, Kumasi, population, 7000. Gold output (1908), 62,489 ounces (£265,468). Revenue, (1909), £20,264; expenditure, £102,211. **NORTHERN TERRITORIES:** Area, between 38,000 and 50,000 sq. miles; revenue (1909), £1690; expenditure, £67,169.

GOLF. The wonderful showing made by Harold H. Hilton of the Royal Liverpool Golf Club, amateur champion of England, was easily the feature of the 1911 golf season. Hilton after winning the highest honors in England visited the United States and captured the amateur championship title. He also finished only one stroke behind Harry Vardon and Arnaud Massy, who tied for the British professional championship. Other players in the limelight during the year were Jerome D. Travers, winner of the Metropolitan and New Jersey championships; Oswald Kirby, winner of the Tuxedo, Apawamis, and Nassau tournaments; Miss Margaret Curtis, winner of the women's national championship; Charles W. Evans Jr., winner of the French amateur championship; J. J. McDermott, winner of the United States open championship; Albert Seckel, winner of the Western championship, and Gilbert Nicholls, winner of the United States professional championship. Nicholls established a world's record by covering a 6000-yard course in 281.

The team championship of the Intercollegiate Golf Association for the fourth year in succession was won by Yale which defeated Harvard in the finals by 9 matches to 0. The individual winner was George Stanley of Yale who was victor over Henry Heyburn of the University of Pennsylvania 5 up and 4 to play. In dual college matches Princeton defeated Williams, Yale defeated Princeton, Williams defeated Columbia, and Harvard and Williams tied, Oxford won the contest with Cambridge 5 matches to 3.

The principal tournaments abroad aside from those already mentioned were the German and Irish championships. Alexander H. Revell of Chicago won the German amateur title and Harry Vardon of England the professional title. Vardon established a new record of 279 for 72 holes. The course was 4766 yards.

GÓMEZ, JOSÉ M. See CUBA.

GONNUS. See ARCHÆOLOGY.

GORDON BENNETT AVIATION TROPHY. See AERONAUTICS.

GORDON, GEORGE WASHINGTON. An American soldier, former congressman from Tennessee, died August 9, 1911. He was born in Giles county, Tenn., in 1836, and graduated from the Western Military Institute in 1859. He practiced civil engineering until the outbreak of the Civil War, when he enlisted in the military service of Tennessee as drill master of the eleventh infantry. He was transferred to military service in the Confederate army and was promoted in succession to be captain, lieutenant-colonel, colonel, and brigadier-general. He was taken prisoner and held until August, 1865, at Fort Warren, Mass. At the close of the war he studied law and practiced in Memphis until 1883. He was appointed one of the railway commissioners of the State and in 1885, received an appointment in the Department of the Interior of the United States. He resumed the practice of law in Memphis until his election as city superintendent of schools in 1892 and served in this position until 1907. He was a member of the Sixtieth and Sixty-first congresses, 1907 to 1911. He was major-general commanding the Tennessee Division of the United Confederate Veterans.

GORST, Sir ELDON. A British administrator, died July 12, 1911. He was the eldest son of Sir John Eldon Gorst and was born in New Zealand in 1861. He was educated at Eton and Trinity College, Cambridge. He entered the diplomatic service and in the following year was sent to the British Agency at Cairo as an attaché. He entered the service of the Egyptian government in 1890. In the meantime he had mastered the Arabic language, of which he acquired a better knowledge than the higher English officials who had not lived for many years in close and intimate contact with the people. After spending four years successively as controller of the direct taxes and under-secretary for finance he became, in 1894, adviser to the ministry of the interior as the first holder of this office. His administration was marked by many reforms, especially in the control of the Egyptian police. In 1898 he was made financial adviser in succession to Sir Elwin Palmer. Here his genius for finance made itself evident. In 1902, he was knighted and two years later was sent on special duty to Paris, where he played an important part in the conclusion of the Anglo-French agreement. He was then for three years assistant under-secretary at the British foreign office, especially in charge of that branch which deals with Egypt and Central Asia. On the resignation of Lord Cromer in 1907 Gorst was appointed his successor. This appointment came at a difficult period in the history of British rule in Egypt. The activities of the Young Egyptian party were beginning to cause unrest and dissatisfaction among the natives. One of his first achievements was to establish more cordial relations with the khedive. He also made patient efforts to improve the efficiency of the Legislative Council and the General Assembly, but in this he made slow progress. A great administrative reform which he carried out was the development of the provincial councils. In this he followed lines suggested by Lord Cromer. His last report, issued in May, 1911, showed that he had no confidence in the fitness of the people of

Egypt to manage their own affairs through representative institutions, though he indicated that a beginning might be made with local governing bodies. He found it necessary to revive the law controlling publications in native newspapers and did not hesitate to apply it. One of the most important results of his administration was the development of the Sudan, including the great project for irrigating the Gezira from the Blue Nile. He was obliged to return to England on account of ill health in April, 1911. See EGYPT.

GOUCHER COLLEGE. An institution for the higher education of women, founded as the Woman's College of Baltimore, in 1884. The change in the name of the college was made by order of the board of trustees under an act of the General Assembly of Maryland of March 31, 1910. The number of students enrolled in the various departments of the college in 1910-11 was 358. The faculty numbered 29. The principal change made in the faculty during the year was the resignation of Dr. E. A. Noble from the presidency to accept a similar position at Dickinson College. No successor had been chosen at the end of the year. Dr. Fanny C. Gates in the department of physics was succeeded by Dr. Samuel N. Taylor. Dr. S. O. Mast in the department of botany was succeeded by Dr. W. H. Longley. Miss Lila V. Knapp in the department of English was succeeded by Dr. H. L. Ebeling. Miss Ella A. Knapp in the department of English was succeeded by Miss Annette B. Hopkins. The department of education was dropped and with it Dr. Leonard A. Blue retired from the faculty. Educational courses are now given in connection with the department of philosophy. The library contains about 35,000 volumes. The acting president is John B. Van Meter.

GOVERNMENT, MUNICIPAL. See MUNICIPAL GOVERNMENT.

GOVERNORS' CONFERENCE. The conference of governors, the so-called "House of Governors," which meets in annual conference, held its fourth session in September, 1911, at Spring Lake, N. J. Thirty States were represented by their executives in person or by others sent to represent them. The following general topics were considered: Strengthening the power of the State executive, employers' liability and compensation, the inheritance tax, State comity, and State control of public utilities. Many interesting addresses were made during the conference, including those of Governor Harmon of Ohio, Governor Wilson of New Jersey (the two most conspicuous candidates for the Democratic nomination for the presidency), Governor O'Neal of Alabama, and others. Governor Wilson welcomed the visiting governors in an address. Governor Norris of Montana delivered an address on "Strengthening the power of the executive," and Governor O'Neal spoke on the same topic.

The most important action taken by the conference was its vote by twenty-five to one to send a committee of three to appeal to the Supreme Court of the United States to check "the autocracy of the inferior federal courts." Governor Harmon of Ohio, Governor Hadley of Missouri, and Governor Aldrich of Nebraska were chosen members of this committee. A pretext for this appeal was the decision of Justice Sanborn of the United States Circuit Court of Appeals enjoining the railway commission of Min-

nesota from regulating interstate commerce rates on the ground that such regulation could not be enforced, would deprive the roads of proper remuneration, and would interfere with interstate commerce. The governors took the ground that unless the Supreme Court by its final decision protects State rights, the States will soon become mere federal provinces. In explanation of the stand taken by the conference, the following statement was prepared by Governor Harmon and Governor Hadley:

"In view of the apparent misunderstanding by some of the action of the conference yesterday it is deemed advisable that a statement should be made as to its exact nature and purposes.

"As the decision of the United States Circuit Court in what are known as the Minnesota rate cases, to the effect that the State of Minnesota had no authority to regulate railroad rates within its own borders because interstate commerce was thereby affected, and as other cases involving the same question in other States would come before the Supreme Court of the United States for decision, the conference considered it advisable that a committee should be appointed to see that the State's side of this controversy is properly prepared and presented to the Supreme Court. The committee expects to deal only with the legal side of this controversy and the action taken yesterday was one of only ordinary precaution.

"Every State in the Union is vitally interested in the decision of this question, as the right of each State to regulate its own internal commerce would be destroyed by an adverse decision. We expect to ascertain what cases will first be considered by the Supreme Court in which this question will be decided, and if it is deemed advisable we will ask leave to present to the court a brief in argument in support of the right of the States to regulate commerce wholly within their borders."

The next meeting of the conference will be held in Richmond, Va., in 1912.

GRAPES. See HORTICULTURE.

GRAPE-SEEDS, OIL FROM. See HORTICULTURE.

GRAPHITE. The greater part of the crystalline graphite produced in the United States is mined in Alabama, New York, and Pennsylvania. A small quantity comes also from Alaska. Among the producers of amorphous graphite, Georgia ranks first. It is produced also in Colorado, Michigan, Nevada, and Wisconsin. The total amount of graphite of both varieties produced in 1910 was 38,740 short tons, valued at \$377,176. Of this, 5,590,592 pounds were crystalline, and 3945 short tons were amorphous. The imports of graphite into the United States come chiefly from Ceylon and Mexico. In 1910 these amounted to 25,235 short tons, valued at \$1,872,592. The world's production of graphite in 1909 was 107,306 short tons, valued at \$3,525,140. Austria ranks first in point of production with 45,194 short tons. Ceylon follows, with 28,660 tons, and Italy, with 12,787. United States ranks third in point of production. Other countries producing considerable quantities are Germany and India.

Artificial graphite is made in large quantities, the amount produced in 1910 being 13,149,100 pounds, valued at \$945,000. It is made entirely at Niagara Falls, N. Y.

GRASS DANCE. See ANTHROPOLOGY.

GREAT BRITAIN. The United Kingdom of Great Britain and Ireland, a constitutional monarchy. Capital, London.

AREA AND POPULATION. The total area, including the Isle of Man and the Channel islands, is 121,391 sq. miles. The area of England and Wales is shown in the table below as 58,324 sq. miles; for purposes of the 1911 census the area was taken as 37,337,630 acres, or 58,340 sq. miles, of land and inland water. By divisions the area and the population, according to the census of April 1, 1901, and preliminary returns of the census of April 3 (midnight, April 2), 1911, are shown in the following table:

	Sq. m.	Pop. 1901.	Pop. 1911.
England	50,851	30,811,420	34,043,076
Wales	7,473	1,716,423	2,032,193
Scotland	30,405	4,472,103	4,769,446
Ireland	32,360	4,458,776	4,381,951
Isle of Man	121,089	41,458,721	45,216,665
Channel Islands	227	55,608	52,034
Channel Islands	75	92,234	96,900
	121,391	41,976,827	45,365,599

The foregoing figures do not include army, navy, or merchant seamen abroad, who numbered, in 1901, 367,736. Of the population in 1911, 22,012,872 were males and 23,352,727 females. The growth of population (and in Ireland, since 1841, the decreases) are shown as follows:

Year	E. & W.	Scot.	Ire.	U. K.
1801	8,892,536	1,608,420	.....	.....
1811	10,164,256	1,806,884	.....	.....
1831	13,896,797	2,364,386	7,767,401	24,028,584
1841	15,914,148	2,620,184	8,175,124	26,709,456
1851	17,927,609	2,888,742	6,552,385	27,368,736
1861	20,066,224	3,062,294	5,798,967	28,927,485
1881	25,974,439	3,735,673	5,174,836	34,884,848
1911	36,075,269	4,759,445	4,381,951	45,216,665

The percentage of population in the different divisions has been as follows:

	1841	1861	1881	1891	1901	1911
England ..	56.1	65.6	70.6	72.8	74.3	75.3
Wales	3.4	3.8	3.9	4.0	4.1	4.5
Scotland ..	9.8	10.6	10.7	10.7	10.8	10.5
Ireland ..	30.7	20.0	14.8	12.5	10.8	9.7

The percentage of increase between 1901 and 1911 was: United Kingdom, 9.1; England, 10.5; Wales, 18.1; Scotland, 6.4; Ireland, decrease 1.7; Isle of Man, decrease 5.0.

The 1911 census returns for religious adherence are not yet available except in the case of Ireland, for which the preliminary returns are as follows (percentage of decrease, as compared with 1901, in parenthesis): Roman Catholics, 3,238,656 (2.1); Protestant Episcopalians, 575,489 (1.0); Presbyterians, 439,876 (0.8); Methodist, 61,806 (0.3); Jews, 5101 (increase 30.9); other persuasions, 57,718 (decrease, 2.4); unknown, 2610.

The Administrative County of London had in 1901, 4,536,267 inhabitants; in 1911 (preliminary returns), 4,522,861; Metropolitan Police district, 6,554,479 and 7,233,306; Greater London, 6,581,402 and 7,252,963. The only cities above 100,000 showing a decrease in 1911, were the Administrative County of London (0.3) and Halifax (3.2). The larger cities in 1911 (preliminary returns), with percentage of in-

crease over 1901; Glasgow, 784,455 (1.1); Liverpool, 746,566 (6.0); Manchester, 714,427 (10.8); Birmingham, 525,960 (0.5); Sheffield, 454,653 (11.1); Leeds, 445,568 (3.9); Belfast, 385,492 (10.4); Bristol, 357,059 (5.3); Edinburgh, 320,315 (0.9); Dublin, 309,272 (6.4); West Ham, 289,102 (8.1); Bradford, 288,505 (3.1); Kingston-upon-Hull, 278,024 (15.7); Newcastle-upon-Tyne, 266,671 (8.0); Nottingham, 259,942 (8.4); Stoke-on-Trent, 234,553 (9.2); Salford, 231,380 (4.7); Portsmouth, 231,165 (22.4); Leicester, 227,242 (7.4); Cardiff, 182,280 (10.9); Bolton, 180,885 (7.6); Croydon, 169,559 (26.6); Dundee, 165,206 (1.2); Aberdeen, 163,084 (6.2).

The following table shows the rate, per thousand of the population, of births, deaths, and marriages, i. e., persons married:

	E. & W.	Scot.	Ire.	U. K.
Births 1900	28.7	29.6	22.7	28.2
Births 1909	25.8	27.3	23.5	25.7
Births 1910	25.1	26.2	23.3	25.0
Deaths 1900	18.2	18.5	19.6	18.4
Deaths 1909	14.6	15.8	17.2	15.0
Deaths 1910	13.5	15.3	17.2	14.0
Marriages 1900	16.0	14.6	9.5	15.1
Marriages 1909	14.7	12.8	10.4	14.1
Marriages 1910	14.9	13.0	10.1	14.3

Arrivals and departures in 1909 and 1910, (exclusive of passengers from or to Europe), were as follows (the last column showing the number of British passengers from and to the United States):

	British	For'gn's	Tot.	U. S.
Arr., 1909	149,068	112,257	261,325	53,323
Arr., 1910	164,139	134,640	298,779	58,623
Dep., 1909	288,761	185,617	474,378	109,700
Dep., 1910	397,848	221,011	618,859	132,192

EDUCATION. In England and Wales (where elementary instruction is compulsory), on July 31, 1910, there were in the public elementary schools accommodations for 7,117,941 pupils; 32,128 departments; 39,799 men teachers and 121,997 women teachers; 3,046,082 boys and 2,987,507 girls enrolled; and an average attendance of 88.85 per cent. On the same date, there were 52 higher elementary schools, with accommodations for 15,317 pupils, with 616 teachers, 12,184 pupils (average during the year), and an average attendance of 91.9 per cent. There are many special elementary schools for the blind, deaf, etc. For public secondary education, there were on January 31, 1910, 950 schools, with 5029 men and 4723 women teachers, and 84,305 boys and 72,032 girls enrolled. At evening and similar schools in 1910, there were 768,358 students; in day technical classes, 10,757; at technical institutions, 2664; in art classes, 2696; at schools of art, 43,973. Teachers are trained at pupil-teacher centres, training classes, and hostels. The public schools here treated are not to be confounded with the many private institutions known as "the public schools."

In Scotland, for the year ending August 31, 1910, there were 3156 public primary schools, with accommodations for 1,027,185 pupils. 818,890 pupils enrolled, and 719,122 in average attendance; 194 higher grade schools, with an enrollment of 24,352 and average attendance of

24,095; 1055 continuation classes, with 127,687 students. Teachers in elementary (primary and higher) schools, 5271 men and 14,397 women, exclusive of 324 pupil teachers. Secondary schools, 57, with 21,008 enrolled (11,993 boys, 9015 girls) and average attendance 19,965. Students at training colleges and centres, 2917.

In Ireland, December 31, 1910, there were 8337 public primary schools, with accommodations for 762,764 pupils, 679,435 enrolled, and 495,959 in average attendance; teachers, 12,829 (5697 men). Training colleges in 1910, 7, with 1195 students.

In the year ending March 31, 1910, total payments for public elementary education, £22,795,179 (£11,329,381 from Parliamentary grants, £11,012,392 local rates) against £21,987,004 in the preceding year. In Scotland, the expenditure from Parliamentary grants was £2,233,165 in the year ended March 31, 1911, and £2,129,710 in the preceding year. In Ireland the amount expended from grants and rates by the commissioners of national education was £1,714,252 in the year ended March 31, 1911, and £1,688,649 in the preceding year.

PAUPERISM. The mean number of paupers, and the ratio per thousand of estimated population, relieved on January 1 and on July 1 preceding (exclusive of casual paupers and insane) are as follows for England and Wales:

	Indoor		Outdoor		Total	
	Mean	Ratio	Mean	Ratio	Mean	Ratio
1905	222,217	6.6	542,891	16.1	764,589	22.7
1910	256,523	7.2	534,938	15.1	790,496	22.3
1911	256,100	7.2	503,181	14.1	758,278	21.2
Of whom able-bodied adults:						
1905	43,987	1.3	72,379	2.2	116,366	3.5
1910	53,797	1.5	72,832	2.1	126,629	3.6
1911	52,889	1.5	71,383	2.0	124,272	3.5

In the above table, for paupers receiving both in-door and out-door relief, deductions are made from total. The number of poor of all classes in receipt of relief in parishes in Scotland on January 15, 1910, was 75,626 paupers and 40,955 dependents; on January 15, 1911, 67,026 and 41,306. The number of paupers in receipt of relief in unions in Ireland at the close of the first week in January, 1910, was 99,002 (5129 able-bodied adults); 1911, 80,658 (4778).

AGRICULTURE. The total cultivated area in acres (in the first week in June) in Great Britain, in Ireland, and in the United Kingdom, including Man and the Channel Islands, has been as follows:

Year.	Gr. Brit.	Ireland.	U. K.
1895	32,577,513	15,179,382	47,883,097
1905	32,286,832	15,262,949	47,673,113
1909	32,183,073	14,580,142	46,888,403
1910	32,145,930	14,661,045	46,931,637

The following table shows the area in acres under the principal crops in the first week of June, 1910:

Crops.	Gr. Brit.	Ireland.	U. K.
Wheat	1,808,854	47,631	1,857,671
Barley	1,728,681	168,008	1,899,130
Oats	3,020,974	1,073,690	4,116,137
Rye	48,249	8,681	57,004
Beans	270,042	1,839	271,983
Peas	168,728	230	169,091
Total corn crops	7,046,528	1,300,079	8,371,016

Crops (cont.)	Gr. Brit	Ireland.	U. K.
Potatoes	539,684	592,985	1,144,465
Turnips and swedes	1,565,345	275,296	1,848,919
Total green crops ..	2,994,891	1,012,087	4,031,134
Cultivated grass	4,157,037	2,468,015	6,670,398
Uncultivated grass ...	17,477,040	9,821,896	27,327,816

The production of the principal crops in imperial bushels, long tons, or cwts., and the average yield per acre, were as follows in 1910:

Crops.	Great Britain.		Ireland.	
	Production. Bu.	Per ac. Bu.	Production. Bu.	Per ac. Bu.
Wheat ...	54,877,250	30.34	1,716,183	36.03
Barley ..	56,476,104	32.67	6,572,393	39.12
Oats	121,829,001	40.33	53,965,316	50.26
Beans	8,669,761	32.42	77,162	41.96
Peas	4,005,183	26.17	6,427	27.94
Potatoes ..	2,477,139	Tons.	2,870,827	Tons.
Turnips and swedes ..	25,695,018	16.41	4,624,341	16.80
Mangold ..	9,352,995	21.12	1,466,328	19.48
Cultiv. hay	3,264,333	1.57	1,888,180	2.14
Uncul. hay	6,252,292	1.25	3,890,064	2.52
Hops	302,675	Cwts.	.....	Cwts.

Livestock in the first week of June, 1910 (the figures for horses include only those used for agriculture, brood mares, and unbroken horses):

	Gr. Brit.	Ireland.	U. K.*
Horses	1,545,376	539,517	2,094,587
Cattle	7,037,327	4,688,888	11,765,453
Sheep	27,102,945	3,979,516	31,164,587
Swine	2,349,946	1,200,005	3,561,481

*Including Isle of Man and the Channel Islands.

MINING AND METALS. The following table shows the quantity and the spot value of coal and metals produced in 1900, 1908, and 1909:

	1900	1908	1909
Coal, tons	225,181,300	261,528,795	263,774,312
..... £	121,652,596	116,598,848	106,274,900
Pig iron, Br.*tons	4,666,942	4,847,448	4,802,163
..... £	19,596,910	15,362,946	15,559,253
Pig iron, Fn.†	4,202,749	4,209,403	4,729,824
..... £	18,025,639	13,340,799	15,324,871
Fine copper, tons	765	579	435
..... £	59,995	36,935	27,162
Metallic lead, tons	24,364	20,999	22,463
..... £	418,960	288,124	298,945
White tin, tons	4,268	5,052	5,199
..... £	587,869	676,258	695,546
Zinc, tons	9,066	5,832	3,818
..... £	188,578	122,739	87,146
Silver, oz.	190,850	135,268	142,146
..... £	22,465	13,739	14,030
Bar gold, oz. ...	14,004	915	1,210
..... £	52,147	3,311	4,400

*From British ores. †From foreign ores.

The total spot value of coal and the metals named above has been: 1896, £78,738,947; 1900, £160,605,154; 1905, £113,552,434; 1908, £146,443,699; 1909, £138,286,253. In addition to coal, the non-metallic minerals produced in 1909 were valued at £8,441,294. The total minerals raised (that is, coal, stone, ores, etc., but not smelting products) in 1909 were valued at £119,394,486 (£130,003,670 in 1908), of which England is credited with £80,151,814, Wales, £23,707,215, Scotland, £15,280,480, Ireland, £213,816, and Man, £41,161. In 1909, 1,042,435

persons were employed in or about the mines (of whom all but 28,437 at the coal mines) and 83,937 in the quarries.

FISHERIES. The value of fish (exclusive of salmon) landed on the coasts of the United Kingdom is reported as follows:

	1909	E. & W.	Scot.	Ira.	U. K.
Fish wet	£7,497,129	£2,889,107	£304,937	£10,691,183	
Shellfish	262,521	72,302	58,864	393,777	
Total 1910	7,759,680	2,961,499	363,801	11,084,960	
Fish, wet	7,965,853	3,100,387	316,500	11,382,740	
Shellfish	228,424	69,760	59,130	357,314	
Total	8,194,277	3,170,147	375,630	11,740,054	

COMMERCE. Total imports, imports re-exported, and net imports (that is, imports for home consumption) have been valued as follows (exclusive of specie and bullion and of foreign merchandise transhipped under bond):

Year.	Total Imp.	Reexports	Net Imports.
1900	£523,075,163	£ 63,181,758	£459,893,405
1905	565,019,917	77,779,913	487,240,004
1909	624,704,957	91,344,819	533,360,138
1910	678,257,024	103,761,045	574,495,979

The total imports do not include diamonds imported from the Cape of Good Hope; the value of diamonds exported from the cape to the United Kingdom has been: 1900, £3,433,836; 1905, £6,758,623; 1909, £6,169,953; 1910, £8,480,875.

Imports and exports of gold and silver specie and bullion: 1900, £39,513,173 and £31,972,039 respectively; 1905, £51,559,909 and £45,391,519; 1909, £66,506,718 and £80,034,718; 1910, £71,422,077 and £64,724,213.

Total exports, reexports of foreign and colonial produce, and domestic exports (that is, exports of the produce of the United Kingdom) have been valued as follows (exclusive of specie and bullion and of foreign merchandise transhipped under bond):

Year.	Total Exps.	Reexports	Dom. Ex.
1900	£354,373,754	£ 63,181,758	£291,191,996
1905	407,596,527	77,779,913	329,816,614
1909	469,525,166	91,344,819	378,180,347
1910	534,145,817	103,761,045	430,384,772

Total imports of merchandise and domestic exports of merchandise in 1909 and 1910, are shown by classes in the following table:

	Total Imports		Domestic Exports	
	1909	1910	1909	1910
I. Food, drink, and tobacco:				
Grain and flour	£ 83,107,421	£ 77,298,383	£ 3,399,004	£ 3,416,637
Meat, including animals for food	47,623,428	48,878,947	797,203	935,958
Other food and drink	.....	.....	17,461,416	19,676,550
1. Non-dutiable	67,848,986	72,229,940	.....	.....
2. Dutiable	50,752,885	54,649,936	.....	.....
Tobacco	4,986,663	4,624,782	1,678,268	2,042,593
Total	254,319,383	257,681,588	23,335,891	26,070,738
II. Raw materials and articles mainly unmanufactured:				
Coal coke, and manufactured fuel	8,297	34,119	37,129,978	37,813,360
Iron ore, scrap iron and steel	5,076,131	6,261,471	509,758	476,863
Other metallic ores	8,327,193	8,970,272	95,553	71,791
Wood and timber	23,591,579	26,207,329	108,673	129,290
Raw cotton	60,295,049	71,711,908	.....	.....
Wool (including rags, etc.)	30,041,766	37,332,470	4,648,565	4,220,443
Other textile materials	12,127,707	12,803,327	214,261	323,536
Oil seeds, nuts, oils, fats, and gums	31,039,883	37,548,960	3,400,766	5,023,499
Hides and undressed skins	11,617,756	12,882,326	1,916,634	1,757,762
Materials for paper making	4,499,281	4,972,487	678,049	744,278
Miscellaneous	28,520,854	42,450,959	2,453,780	2,767,460
Total	220,145,496	261,175,628	51,156,007	53,328,382
III. Articles wholly or mainly manufactured:				
Iron and steel and manufactures thereof	7,971,594	9,086,214	38,192,142	42,976,671
Other metals and manufactures thereof	24,346,328	24,699,194	8,708,945	10,352,354
Cutlery, hardware, implements and instruments	3,719,049	4,673,473	5,412,652	6,423,695
Electrical goods and apparatus	1,322,509	1,686,540	2,230,799	4,102,602
Machinery	4,438,336	4,470,898	28,057,643	29,271,380
Ships and boats (new)	23,926	27,104	5,927,114	8,770,204
Manufactures of wood and timber (incl. furniture)	2,054,258	2,338,472	1,451,073	1,835,762
Yarns and textile fabrics:				
1. Cotton	9,839,091	10,874,628	93,444,799	105,871,208
2. Wool	9,727,760	9,599,286	30,671,804	37,516,397
3. Silk	12,759,931	13,521,021	1,859,979	2,278,943
4. Other materials	7,324,876	8,054,667	12,441,525	13,481,198
Apparel (including boots, shoes, and hats)	5,072,261	5,107,315	9,824,125	12,717,587
Chemicals, drugs, dyes and colors	10,596,593	11,259,685	16,783,019	18,568,136
Leather and mfrs. thereof (excl. boots and shoes)	11,617,130	11,824,741	4,242,356	4,686,485
Earthenware and glass	3,757,389	3,816,971	3,687,249	4,352,059
Paper	5,647,437	6,413,718	2,559,371	3,122,699
Railway carriages and trucks (not of iron), etc.	4,690,781	5,603,149	6,183,770	7,449,977
Miscellaneous	22,761,845	23,788,385	25,100,103	29,091,840
Total	147,671,094	156,845,461	296,758,468	342,869,197
IV. Miscellaneous and unclassified (in. par. post).	2,568,984	2,554,347	6,929,981	8,116,555
Grand total	624,704,957	678,257,024	378,180,347	430,384,772

Re-exports of merchandise, classified according to the foregoing table, were as follows in 1909 and 1910 respectively: Class I., £12,000,262 and £12,873,975; class II., £54,398,260 and £63,310,059; class III., £24,672,737 and £27,342,345; class IV., £273,560 and £234,666; total, £91,344,319 and £103,761,045.

In 1910, leading imports not specified in the table included: Wheat, £44,160,884; rubber, £26,493,450; butter, £24,493,450; sugar, refined £13,133,352, unrefined £11,420,857; chilled and frozen beef, £11,745,146; tea, £11,381,056; corn, £10,294,340; fresh fruit, £10,381,639. Leading domestic exports not specified in the table included in 1910: Cotton piece goods, £78,685,438; cotton yarn, £13,337,780; woolen and worsted yarn, £8,548,928; coal, £36,099,560; galvanized sheet iron, £7,425,602; tin plate, £6,545,024; pig iron, £4,138,694.

Of the total imports of merchandise, £479,453,018 was from foreign countries and £145,251,939 from British possessions in 1909; in 1910, £507,806,758 and £170,450,266. In 1909, domestic exports to foreign countries £250,942,263 and to British possessions £127,238,084; in 1910, £283,081,830 and £147,302,942.

Total imports and total exports of merchandise by principal countries, in thousands of pounds sterling:

Countries.	Imports.		Exports.	
	1909.	1910.	1909	1910
United States	118,270	119,975	59,254	62,182
France	50,691	51,324	31,515	33,971
Russia	36,898	43,339	18,326	21,221
British India	35,452	42,852	44,698	47,032
Germany	40,115	41,199	47,169	54,911
Netherlands	37,372	40,422	16,304	18,030
Australia	32,656	38,576	27,207	31,073
Belgium	29,218	32,490	19,285	21,077
Argentina	32,528	28,933	19,202	19,734
Canada	27,347	26,374	18,075	22,615
Egypt	19,872	21,027	8,142	8,883
New Zealand	17,731	20,943	8,081	9,403
Denmark	19,427	20,112	5,705	6,148
Brazil	11,272	17,518	8,809	16,862
Spain	13,363	13,827	5,352	5,415
Straits Settlements..	8,124	11,590	3,436	4,246
Sweden	9,245	11,385	7,114	7,783
Cape Good Hope* ..	7,693	7,744	9,758	12,790
Norway	6,574	6,666	2,835	4,540
Chile	6,607	6,397	5,054	5,932
Ceylon	5,544	5,984	1,920	2,455
Japan	4,233	4,816	8,619	10,389
Turkey	3,085	4,683	7,789	8,832
China	3,726	4,163	8,558	9,317
Italy	3,634	3,760	13,275	14,468
Rumania	3,395	3,497	1,755	1,880

*Imports do not include diamonds.

SHIPPING. Total net tonnage entered and cleared (exclusive of the coasting trade):

	Entered	British.	Foreign.	Total
1900	31,445,328	17,777,478	49,222,806	
1909	39,661,660	26,647,859	66,309,519	
1910	39,641,620	27,018,329	66,660,449	
Cleared.				
1900	31,265,508	18,035,379	49,300,887	
1909	40,102,311	26,855,852	66,958,163	
1910	40,173,466	27,196,399	67,369,865	

In 1910, entered steam 64,709,154 tons, cleared 65,422,020; total entered with cargo 41,618,665, cleared 57,326,948. Leading foreign tonnage entered in 1910: German, 8,919,862; Norwegian, 4,369,251; Danish, 2,778,132; Dutch, 2,635,510; Swedish, 2,542,304. American tonnage entered was only 246,744. In 1910, net

tonnage entered in coasting trade, 61,808,816 (57,805,740 British); cleared, 61,569,327 (57,444,022 British). The merchant marine on December 31, 1910, consisted of 12,000 steamers, of 10,442,719 tons net, and 9090 sailing vessels, of 1,112,944; total, 21,090 vessels of 11,555,663 tons net (18,468,895 tons gross).

COMMUNICATIONS. Railways open to traffic increased from 23,280 miles December 31, 1909, to 23,387 miles December 31, 1910, of which in England and Wales 16,148, in Scotland, 3838, and in Ireland, 3401. Total paid-up capital, £1,318,515,000, with about 3.53 per cent. as the average rate of dividend or interest in 1910; gross receipts, £123,925,565; working expenditure, £76,560,670; net receipts, £47,355,899; percentage of working expenditure to gross receipts, 62. Tramways and light railways aggregated 2526 miles at the end of 1909; 1910, 2562 miles.

The principal British construction in 1911 consisted in the extension of the various underground lines in London and suburban railways, most of which were operated by electricity. Several of the London stations were being reconstructed, and enlargements were being made at Paddington and Waterloo. The London and Northwestern built a 3½-mile loop from the Nuneaton branch at Bedlam Gate through Coventry city to its main line between Coventry and Brandon. Progress was made on the Lancashire and Yorkshire electric-belt scheme from Liverpool via Ormskirk to Southport, and on the Midland deviation at Lancaster which included a viaduct over the river Lune. The great central deviation at Ready which included a new bridge over the river Trent was also constructed, and a light railway from Immington to Barton was opened in May. The Great Western was engaged in developing its Swansea district lines, and improvements at Birmingham which were completed during the year. A 9-mile extension from Heath to Treforest in Cardiff was also completed. A 5½-mile long light railway between Thaxted and Elsingham in Essex was begun during the year. The Great Southern and Western Railway in Ireland was connected with the Cork and Bandon line by the completion of the Cork city railways. In Scotland the Great Northern and the Caledonian companies were enlarging the station at Aberdeen, so that it would have thirteen platforms with an aggregate length of 2½ miles.

On March 31, 1910, state telegraph lines had a length of 58,350 miles; wire, 1,170,125 miles; offices, 11,291; other telegraph offices, 2504; number of exchange telephones, 98,296. On March 31, 1911, there were 24,098 post offices.

FINANCE. The monetary unit is the pound sterling, worth \$4.8665. The following table shows, for years ended March 31, budget estimates of revenue, actual receipts into the Exchequer, and the excess (+) or deficiency (—) of the actual as compared with the estimated amounts:

Year.	Estimates.	Receipts.	Difference.
1900	£120,550,000	£129,804,566	- £ 9,254,566
1905	153,086,000	153,182,782	96,782
1909	153,080,000	151,578,295	1,501,705
1910	162,590,000	131,696,466	30,893,544
1911	199,791,000*	203,850,588	- 4,059,588

*Including arrears (largely in property and income tax) estimated at £30,046,000.

The table below shows, for fiscal years, budget and supplementary estimates of expenditure, actual issues out of the Exchequer chargeable against the revenue and the surplus (+) or deficit (—) of actual receipts (shown in foregoing table) as compared with actual expenditure:

Year	Estimates	Issues	Sur. or Def.
1900 ...	£144,064,823	£143,687,068	— £13,882,502
1905 ...	152,776,994	151,768,875	+ 1,413,997
1909 ...	154,321,699	162,292,395	— 774,100
1910 ...	163,171,000	157,944,611	+ 5,606,766*
1911 ...	174,129,000	171,995,667	

* The Revenue act, 1911, directed that the income and expenditure of the fiscal years 1910 and 1911 be aggregated (for the purpose of determining the Old Sinking Fund for 1911).

For the fiscal years 1910 and 1911, revenue (Exchequer receipts) was derived as follows: Customs, £30,348,000 and £33,140,000; excise, £31,032,000 and £40,020,000; estate, etc., duties, £21,766,000 and £25,452,000; stamps (exclusive of fee and patent stamps), £8,079,000 and £9,784,000; land tax, £150,000 and £1,220,000; house duty, £580,000 and £3,080,000; property and income tax, £13,295,000 and £61,946,000; land value duties, and £520,000; (total from these sources, £105,230,000 and £175,162,000); post office, £18,220,000 and £19,220,000; telegraph, £3,090,000 and £3,175,000; telephone, £1,720,000 and £1,955,000; crown lands (net receipts), £480,000 and £500,000; Suez Canal shares, £1,056,207 and £1,129,260; fee and patent stamps, £1,037,000 and £1,070,000; miscellaneous, £763,249 and £1,639,329; total £131,696,456 and £203,850,588.

Details of expenditure chargeable against revenue in the fiscal years 1910 and 1911:

	1910	1911
I. Consolidated Fund Services:		
National debt services	£ 21,757,661	£ 24,554,004
(Interest of funded debt)	(15,490,798)	(15,377,321)
(New Sinking Fund)	(1,000,000)	(4,112,961)
Road improvement fund, etc.		1,362,641
Local taxation accounts, etc.	9,445,395	9,881,709
Civil list	470,000	470,000
Annuities and pensions	265,269	299,933
Salaries and allowances	72,332	56,609
Courts of justice ..	518,565	514,283
Miscellaneous	327,389	323,488
Total	32,856,611	37,462,667
II. Supply Services:		
Army (incl. ordnance)	27,236,000	27,449,000
Navy	35,807,000	40,386,000
Misc. civil services ..	40,010,000	43,098,000
Customs and excise ..	2,116,000	2,211,000
Internal revenue ...	1,226,000	1,708,000
Posts, telegraphs, and telephones ..	18,639,000	19,681,000
Total	125,088,000	134,533,000
Grand total	157,944,611	171,955,667

Issues to meet capital expenditure aggregated £1,281,000 in the fiscal year 1910, and £1,040,000 in 1911. For the fiscal year 1910, the total

Exchequer receipts including the revenue and on April 1, 1909, a bank balance of £6,350,427) and issues (including the expenditure and, on March 31, 1910, a bank balance of £2,831,248) balanced at £237,124,840; for 1911, £278,647,731, (the bank balance March 31, 1911, being £13,546,171). Estimated revenue for the year ending March 31, 1912, £181,621,000; estimated expenditure, £181,284,000 (£31,086,499 army, £46,204,709 navy, £48,736,821 civil service).

During the year 1910-11 the so-called dead-weight debt was decreased by £28,012,949. On March 31, 1911, the funded debt stood at £610,315,194, the estimated capital liability in respect of terminable annuities at £34,417,265, and the unfunded debt at £40,500,000; total dead-weight debt, £685,232,459 (against £713,245,408 in 1910, £770,778,762 in 1903, and £628,930,653 in 1900). Capital liabilities in addition amounted to £47,840,151, so that the gross debt was £733,072,610 (against £762,463,625 in 1910, £708,349,190 in 1903, and £638,919,932 in 1900). Total charges of the gross debt in 1910-11, £20,211,989. Assets which must be set against the gross debt March 31, 1911: estimated market value of Suez Canal shares, £37,608,000; other assets, £4,003,098; and the Exchequer balance of £13,546,171; total, £55,157,269, leaving the net amount of the debt £677,915,341 (against £720,219,025 in 1910).

ARMY. But few changes were made during 1911 in the general plan of army headquarters and administration, as conducted by the army council under the presidency of the Secretary of State for War, Lord Haldane, assisted by the Chief of the Imperial General Staff, Gen. Sir W. Nicholson, who was to be succeeded in that position early in 1912 by Gen. Sir J. D. P. French. Gen. Sir C. W. H. Douglas was appointed to succeed Gen. Sir John French as inspector-general of the home forces, while Gen. Sir Ian Hamilton continued as general officer commanding-in-chief in the Mediterranean, and inspector-general of the overseas forces. The duties of this latter position in regard to self-governing dominions, and the general scheme of imperial division, were discussed during the year, and a committee of the imperial conference which was held at the war office in June, 1911, approved the plan as adopted. One of the features of this scheme was that the inspection of the forces of the self-governing colonies was only to take place at the invitation of these governments.

The whole army establishments and effectives, both officers and men, are shown in the accompanying table from the army estimates of 1911-12.

	Establishments	Effectives
	1911-12	1910-11
Regular forces (regimental), Home and Colonial (including regular establishment of special reserves)	168,239	168,233
Colonial and Native Indian corps	8,871	8,580
Army reserve	139,000	138,000
Special reserves (excluding regular establishment) ..	91,219	86,539
Militia, U. K. ....	.....	2,722
Militia, reserve division ...	500	700
Militia, Channel Islands	3,166	3,163
		3,108

Militia, Malta, and Bermuda, and Bermuda volunteers	Establishments	Effectives
2,894	2,864	2,699
Territorial force	317,106	315,408
Isle of Man volunteers	126	118
Officers' training corps (officers and permanent staff)	946	823
658		
Total Home and Colonial establishments	732,067	724,840
Regular forces (regimental) on Indian establishment	75,884	75,884
77,804		
Total	807,951	800,224
781,739		

The first line of the British army consists of the regular army which supplies the troops required for India and the expeditionary forces which are presumed to be ready for mobilization and prepared to take the field for at least six months' service. Service in the regular army is by voluntary enlistment for a term of twelve years, of which from six to eight years depending on the arm of the service is spent with the colors and the remainder in the reserve. In 1911 this regular army was made up as follows: Cavalry, 31 regiments, of which 3 were household cavalry; 7 dragoon guards, 3 dragoons, 6 lancers, and 12 hussars. There were six depots for recruiting, training, posting, and drafting of men. Twelve of the regiments serving at home were formed into four brigades as follows: (1) at Aldershot; (2) at Canterbury; (3) at Curragh; and (4) at Colchester. The regiment establishment was increased to 696 men and 528 horses. In the artillery there were 28 horse batteries, 150 field batteries, 8 mountain batteries, and 99 garrison companies, which included 12 heavy batteries in service at home and abroad. Six new howitzer batteries formed a part of the 72 field batteries included in the expeditionary forces, and 18 were assigned to the 6 training brigades, and 9 to the regular reserve, also for training. The 6-gun battery organization was used in the British army, except for the heavy batteries and training batteries, to which but four guns were assigned. The infantry of the line consisted of 67 regiments and 2 rifle regiments, aggregating 148 battalions, the normal organization being 2 battalions to a line regiment, one of which serves abroad while the other is at home. In addition, there were a depot and a special reserve battalion. In some cases there were two of these battalions assigned to a single regiment, so that in all 27 special reserve battalions were divided among the forces. In addition to the infantry of the line, 4 regiments, including 9 battalions, made up the brigade of guards. The Royal Engineers, exclusive of those in India, were organized into 83 troops, companies, and other divisions for various technical services. Eighty-four companies made up the army service corps, 75 of which were concerned with transport, 5 with supply, and 4 with remounts, most of these organizations being maintained at the large garrisons. The United Kingdom in 1911 was divided into seven separate commands, as follows: (1) Aldershot command, (2) Southern command, (3) Eastern command, (4) Irish command, (5) Scottish command, (6) Northern command, (7) Western command. All of those, with the exception of the Aldershot command, which is held ready for instant service as a part of the expeditionary

army, was subdivided into local districts for the organization of the infantry.

The army estimates of 1910-11 gave the distribution of the regular army as follows: England and Wales, 94,765; Scotland, 4610; Ireland, 26,651; Jersey, 822; Guernsey and Alderney, 940; in the colonies, Egypt, China, and Cyprus, 46,668; Indian depots in colonies, 413; in India, 77,817; general total at home and abroad, 252,686.

In the estimates of 1911-12 the establishment of the reserve was given as 139,000, or a greater number than normal on account of the large number of 3-year men recruited under the old system.

In the general organization of the British army the territorial force play an important part. This establishment is intimately connected with the various territorial divisions of the country, and aims to secure from them a force of 14 divisions, 14 mounted brigades, a proportion of armed troops, and special troops for coast defense. Each division of the territorial force is under the command of an officer of the regular army, assisted by an officer of the general staff and other officers, and in 1911 it was provided that the commanders of mounted and infantry brigades, and of the divisional artillery should be officers from the regular army appointed from half pay.

The effective strength of the territorial army on October 1, 1911, was given by Lord Haldane, minister of war, as 9475 officers and 254,692 non-commissioned officers and men. In addition, there were 724 officers in the medical service and 976 officers in the officers' training corps being instructed, making a grand total of 265,867. The recruits gained for the territorial army between October 1, 1910, and October 1, 1911, were 39,086 who had never served, and 17,167 obtained from the former organization of volunteers. In the marksmanship tests in 1911, of 113,096 trying, 90,672 qualified, and of 66,624 recruits, 36,089 qualified.

THE TERRITORIAL FORCE—ESTABLISHMENT AND STRENGTH JANUARY 1, 1911

	Establishment	Strength
Cavalry	26,111	26,651
Artillery	46,045	39,111
Engineers	15,627	12,848
Infantry	202,573	169,690
Army service corps ..	8,876	7,685
Medical corps	15,102	12,770
Veterinary service ..	202	97
Total	314,545	266,852

NAVY. The following list shows the vessels built and building December 1, 1911 (those building include colonial vessels; the list does not include vessels over twenty years old, unless reconstructed and rearmend since 1905, those not actually begun or ordered although authorized, vessels of less than 1000 tons except torpedo craft, torpedo craft of less than 50 tons, transports, colliers, repair ships, converted merchant vessels, etc.): Dreadnought battleships (having a main battery of all big guns 11 inches or more in calibre), 12 of 236,350 tons built, and 10 of 247,000 tons building; pre-dreadnought battleships, 42 of 617,500 tons built; battleship cruisers (armored cruisers of the *Invincible* type, having guns of largest calibre in main battery), 5 of 96,850 tons built, and 4 of 90,800 tons building; armored cruisers, 34 of 406,800 tons built; cruisers over 6000 tons,

14 of 148,500 tons built; cruisers 6000 to 3000 tons, 42 of 200,480 tons built, and 10 of 50,040 tons building; cruisers 3000 to 1000 tons, 23 of 49,540 tons built; torpedo-boat destroyers, 192 of 108,703 tons built, and 31 of 26,980 tons building; torpedo boats, 59 of 12,710 tons built; submarines, 65 of 20,736 tons built, and 17 of 13,610 tons building; total, 1,896,149 tons built, and 428,430 tons building (as compared, on the same date, with 749,899 tons built, and 337,700 tons building for Germany, 757,711 and 127,355 for the United States, 630,705 and 110,720 for France, 421,369 and 168,750 for Japan, 297,819 and 176,060 for Russia, and 203,812 and 108,310 for Italy).

Main armament of the larger vessels: The 12 dreadnoughts built have an aggregate of 20 13.5-in. and 100 12-in. guns, and the 10 building, 100 13.5-in. guns; the 5 battle cruisers built, 8 13.5-in. and 32 12-in. guns, and the 4 building, 16 12-in. and 16 13.5-in. guns; the 42 battleships built, 8 13.5-in., 152 12-in., 8 10-in., and 52 9.2-in. guns; the 34 armored cruisers built, 68 9.2-in. guns.

Vessels launched in 1911 include the following: Dreadnoughts, *Thunderer* (February 1); *Monarch* (March 30); *Conqueror* (May 1); *King George V.* (October 9); *Centurion* (November 18); battleship cruiser *Princess Royal* (April 29). It is expected that these vessels, and also the *Ajax*, *Audacious*, and *Queen Mary*, and the colonials *Australia* and *New Zealand*, will be completed between March, 1912, and February, 1913.

The dreadnoughts *Neptune* and *Orion* were completed in January and November, 1911, respectively; the battle cruisers *Indefatigable* and *Lion* in February and December. Principal characteristics of the *Orion* (launched August, 1910): Designed speed, 21 knots; displacement, 22,500 tons; length between perpendiculars, 545 ft.; beam, 88.5 ft.; draft, 27.5 ft.; battery, 10 13.5-in. and 20 4-in. guns; torpedo tubes, 3; maximum thickness of armor, 12-in. The *King George V.* is somewhat larger, having a displacement of 24,000 tons and a length of 555 ft. The *Indefatigable* is 555 ft. long, with a displacement of 18,750 tons, and a designed speed of 25 knots. Principal characteristics of the *Lion*: Designed speed, 29 knots; displacement, 26,350 tons; length, 660 ft.; beam, 88.5; draft, 27.5; battery, 8 13.5-in. and 16 4-in. guns; torpedo tubes, 2; maximum thickness of armor, 9 in.

Personnel in 1911, 133,965 officers and men. Expenditure, 1910-11, £40,386,000 (against £35,807,000 in 1909-10); estimate for 1911-12, £46,204,799. See NAVAL PROGRESS and BATTLESHIPS.

GOVERNMENT. The executive power is vested in the king, acting through his ministers; the legislative, in the Parliament, a body of two houses, the House of Lords and the House of Commons. The peers entitled to sit in the House of Lords in 1911 (including the lords spiritual and temporal and three royal princes) numbered 632. The powers of the House of Lords were greatly restricted by the Parliament act of 1911, which provided that a money bill passed by the Commons may become a law, without the Lords' assent, within a month, and other public bills, passed by the Commons in three successive sessions, within two years from the second reading in the first session. The Commons in 1911 consisted of 670 members, elected in December, 1910; Parliament (the second of

George V.) convened January 31, 1911. Of the 670 members of the Commons, 398 were ministerialists and 272 opposition. The ministerialists included 272 Liberals, 43 Labor members, and 84 Nationalists; the opposition consisted of Conservatives and Unionists. For England there were 226 ministerialists and 239 opposition; Wales, 27 and 3; Scotland, 61 and 11; Ireland, 84 and 19; total 398 and 272.

The king in 1911 was George V., who, as second (but only surviving) son, succeeded his father, Edward VII., May 6, 1910. He was born June 3, 1865, and married, July 6, 1893, Princess (Victoria) Mary of Teck. The heir-apparent is their eldest son, Edward, born June 23, 1894, and created Prince of Wales June 23, 1910.

Those of the king's ministers who form the cabinet were as follows at the end of 1911: Prime minister and first lord of the treasury, Herbert Henry Asquith (appointed April, 1908); lord high chancellor, Earl Loreburn (December, 1906); lord president of the council, Viscount Morley of Blackburn (November, 1910); lord privy seal, Earl Carrington (December, 1911, succeeding the Marquis of Crewe); first lord of the admiralty, Winston Spencer Churchill (October, 1911, succeeding Reginald McKenna). Secretaries of state; for home affairs, Reginald McKenna (October, 1911, succeeding Winston Spencer Churchill); foreign affairs, Sir Edward Grey (December, 1905); colonies, Lewis Vernon Harcourt (November, 1910); war, Viscount Haldane (December, 1905); India, Marquis of Crewe (November, 1910). Chancellor of the exchequer, David Lloyd-George (April, 1908); secretary for Scotland, Lord Pentland (December, 1905); chief secretary to the lord-lieutenant of Ireland, Augustine Birrell (January, 1907); postmaster-general, Herbert Louis Samuel (February, 1910). Presidents of committees of the council: Board of trade, Sydney Charles Buxton (February, 1910); local government board, John Burns (December, 1905); board of agriculture, Walter Runciman (October, 1911, succeeding Earl Carrington); board of education, Joseph Albert Pease (October, 1911, succeeding Walter Runciman); chancellor of the duchy of Lancaster, Charles Edward Henry Hobhouse (October, 1911, succeeding Joseph Albert Pease); first commissioner of works, Earl Beauchamp (November, 1910).

HISTORY

INTRODUCTION. The chief political issue in British politics during the year 1911 continued to be, as in the two previous years, the question of curtailing the powers of the House of Lords. As the differences of opinion on this subject have caused during these three years the greatest constitutional crisis in the recent history of the United Kingdom, a brief review, before proceeding to the record of the year 1911, may be of service. The Liberals, who came into power in January, 1906, were only in part successful in carrying out their policies. Down to December, 1909, they had devoted a great part of their time to the licensing and education projects, both of which failed. In their attempts to pass measures which, in a general way, may be classed under the head of industrial improvement and social reconstruction, they were more successful. Among such measures may be mentioned the Trades Disputes Workmen's Compensation, Small Holdings, Port of London, Children's

Court, Old-Age Pension acts, and acts for establishing an eight-hour day in coal mines, providing for labor exchanges in London and the provincial cities, providing for trade boards to put an end to the sweating system, providing for the development and improvement of roads, the improvement of workmen's dwellings, etc. The carrying out of this industrial and social programme involved heavy expenses, and the Old-Age Pension act, in particular, brought in an extraordinary item of cost. Thus the government was confronted in 1909 with a heavy deficit. To meet this it prepared a budget which departed so radically from precedent in the matter of taxation as to precipitate a Parliamentary crisis. The budget was based on the principle that the revenue should be raised chiefly from three sources of taxation: the luxuries of the masses, excess of wealth, and monopolies. Accordingly, increased duties were levied on spirits and tobacco; the income tax was increased; and there was a great increase in the price of liquor licenses. But the change that aroused the greatest opposition was the government's new and radical scheme for the taxation of land values, whereby a plan for the valuation and taxation of the unearned increment was put into effect. In the debate that followed the opposition attacked the budget as unfair, as discriminating against certain classes, and as socialistic. On November 30, 1909, the House of Lords carried a resolution declaring that the bill should be rejected until the country had pronounced upon it. This was followed by a vote of the House of Commons declaring that the action of the Lords in refusing to pass the financial provisions into law was a usurpation of the rights of the House of Commons. Parliament was then prorogued and the date of its dissolution fixed for January 8, 1910, to be followed by the general elections. After one of the most exciting political campaigns of recent years, the electorate returned the Liberals to power, but with a greatly reduced majority. In the preceding Parliament they and their allies had a majority of 334. After the January elections of 1910 the majority was only 124. The action of the Lords in refusing to pass the Finance bill of 1909 revived in acute form the question of the veto power in the upper house. This was vehemently discussed throughout the campaign, the Liberals declaring that the rejection of the Finance bill, after it had been exhaustively discussed and carried by an overwhelming majority in the Commons, was a violation of the constitutional practice hitherto recognized. The chief matters before Parliament in 1910, therefore, were the carrying of the budget and the framing of a measure that should limit the veto power of the House of Lords. The budget was passed in April, 1910, receiving the royal assent on April 29.

Meanwhile, there had been many debates on the constitutional issue. The Conservatives were ready to accept a measure for the reform of the House of Lords, but opposed the radical demands of the Liberals as amounting virtually to the creation of a single-chamber government. The chief features of the Liberal plan, as embodied in the Parliament bill which was passed by the House of Commons in April, were: First, the denial of the right of the Lords to reject or amend a money bill; second, the provision that on the passage of any bill through three successive

sessions of the lower house it should become a law without the consent of the Lords at the end of two years after its introduction; third, the reduction of the term of Parliament from seven to five years. The death of King Edward on May 6 caused a lull in the hostilities between the two parties and in the following month an attempt was made to adjust their differences by conferences on the constitutional question. After eleven of these meetings, the first of which occurred on June 17, and the last on October 21, 1910, it was definitely announced on November 21 that the opposing parties could not reach an agreement. In the autumn session of Parliament the Liberals, taking the stand that an agreement on the subject was hopeless, decided upon dissolution and refused to discuss the amendments which the Conservatives proposed to the Parliament bill. The Conservative plans for the reform of the House of Lords were embodied in Lord Lansdowne's resolutions providing that if differences arose in regard to any bill other than a money bill in two successive sessions and within an interval of not less than one year, a joint session of both houses should be held; but if the differences were of a very serious nature they shall not be referred to this joint sitting but to the popular judgment by referendum, and further declaring that the Lords would forego every constitutional right to reject or amend money bills if provision were made against "tacking," that is to say, against the practice of attaching to a money bill measures which were not of a financial character. With this constitutional issue before it the country again passed through an electoral contest, (December 2, 1910). The campaign was even more bitter than the last, and the issue even more important, as the constitutional question was now definitely before the electors. The elections had the singular result of leaving the government majority practically the same as it was before. On the constitutional question they could now muster a majority of 126, a gain of only two over the majority in the preceding Parliament. Such was the situation at the beginning of the year 1911.

OPENING OF PARLIAMENT. The formal opening of Parliament by the king took place on February 6. In the speech from the throne, after referring to the death of his father and to the return of his uncle, the Duke of Connaught, and his mission in South Africa, the king declared that the relations with foreign powers continued to be friendly; that negotiations had been entered upon with the Japanese government for the conclusion of a new treaty of commerce and navigation, Japan having given notice of her intention to terminate the treaty of 1894; that some improvement had lately appeared in the disordered trade routes in southern Persia; that the government looked forward with great interest to the imperial conference in May; and that after the coronation the king would visit India, and hold an assemblage there. As to the work of Parliament, the speech announced that proposals would be submitted without delay for settling the relations between the two houses; and that measures would be presented for carrying out and extending the policy begun in previous Parliaments by securing old-age pensions for those persons who were generally disqualified by their being in receipt of poor relief. Specific mention was also made of the plan for insurance of the industrial

workers against sickness and invalidism, and for insurance against unemployment in trades especially requiring it. In the debate that followed the government was sharply criticised for its refusal to accept colonial preference. Mr. Balfour attributed to this refusal the reciprocity arrangement between Canada and the United States, which, if carried out logically, would lead, he said, to imperial disaster. For years Canadian statesmen had been offering preference to Great Britain, but the party in power, while admitting the importance of preference, had intimated that nothing would be given in return. As to the constitutional question, he said that unless the government were prepared to act upon principles in which all would agree, the movement would not proceed quietly and smoothly in spite of the conciliatory temper on both sides.

TEXT OF THE PARLIAMENT BILL. As the government's Parliament bill continued to be the chief subject of Parliamentary discussion in 1911, its text is here presented in full for the reader's convenience:

Whereas it is expedient that provision should be made for regulating the relations between the two houses of Parliament: And whereas it is intended to substitute for the House of Lords as it at present exists a second chamber constituted on a popular instead of a hereditary basis, but such substitution cannot be immediately brought into operation: And whereas provision will require hereafter to be made by Parliament in a measure effecting such substitution for limiting and defining the powers of the new second chamber, but it is expedient to make such provision as in this act appears for restricting the existing powers of the House of Lords: Be it therefore enacted by the king's most excellent majesty, and by and with the consent of the lords spiritual and temporal, and commons, in this present Parliament assembled, and by the authority of the same as follows:

I. (1) If a money bill, having been passed by the House of Commons, and sent up to the House of Lords at least one month before the end of the session, is not passed by the House of Lords without amendment within one month after it is so sent up to that house, the bill shall, unless the House of Commons direct to the contrary, be presented to His Majesty and become an act of Parliament on the royal assent being signified, notwithstanding that the House of Lords have not consented to the bill.

(2) A money bill means a public bill which in the opinion of the speaker of the House of Commons contains only provisions dealing with all or any of the following subjects, namely, the imposition, repeal, remission, alteration, or regulation of taxation; the imposition for the payment of debt or other financial purposes of charges on the consolidated fund, or on money provided by Parliament, or the variation or repeal of any such charges; supply; the appropriation, receipt, custody, issue or audit of accounts of public money; the raising or guarantee of any loan or the repayment thereof; or subordinate matters incidental to those subjects or any of them. In this subsection the expressions "taxation," "public money," and "loan" respectively do not include any taxation, money, or loan raised by local authorities or bodies for local purposes.

(3) There shall be indorsed on every money bill when it is sent up to the House of Lords and when it is presented to His Majesty for assent the certificate of the speaker of the House of Commons signed by him that it is a money bill. Before giving his certificate, the speaker shall consult, if practicable, two members to be appointed from the chairman's panel at the beginning of each session by the committee of selection.

II. (1). If any public bill (other than a money bill or a bill containing any provision to extend the maximum duration of Parliament beyond five years) is passed by the House of Commons in three successive sessions (whether of the same Parliament or not), and, having been sent up to the House of Lords at least one month before the end of the session, is rejected by the House of Lords in each of those sessions, that bill shall, on its rejection for the third time by the House of Lords, unless the House of Commons direct to the contrary, be presented to His Majesty and become an act of Parliament on the royal assent being signified thereto, notwithstanding that the House of Lords have not consented to the bill: Provided that this provision shall not take effect unless two years have elapsed between the date of the second reading in the first of those sessions of the bill in the House of Commons and the date on which it passes the House of Commons in the third of those sessions.

(2). When a bill is presented to His Majesty for assent in pursuance of the provisions of this section, there shall be indorsed on the bill the certificate of the speaker of the House of Commons signed by him that the provisions of this section have been duly complied with.

(3). A bill shall be deemed to be rejected by the House of Lords if it is not passed by the House of Lords either without amendment or with such amendments only as may be agreed to by both houses.

(4). A bill shall be deemed to be the same bill as a former bill sent up to the House of Lords in the preceding session if, when it is sent up to the House of Lords, it is identical with the former bill or contains only such alterations as are certified by the speaker of the House of Commons to be necessary owing to the time which has elapsed since the date of the former bill, or to represent any amendments which have been made by the House of Lords in the former bill in the preceding session, and any amendments which are certified by the speaker to have been made by the House of Lords in the third session and agreed to by the House of Commons shall be inserted in the bill as presented for royal assent in pursuance of this section:

Provided that the House of Commons may, if they think fit, on the passage of such a bill through the house in the second or third session, suggest any further amendments without inserting the amendments in the bill, and any such suggested amendments shall be considered by the House of Lords, and, if agreed to by that house, shall be treated as amendments made by the House of Lords and agreed to by the House of Commons; but the exercise of this power by the House of Commons shall not affect the operation of this section in the event of the bill being rejected by the House of Lords.

III. Any certificate of the speaker of the

House of Commons given under this act shall be conclusive for all purposes, and shall not be questioned in any court of law.

IV. (1). In every bill presented to His Majesty under the preceding provisions of this act, the words of enactment shall be as follows, that is to say:

"Be it enacted by the King's most excellent Majesty, by and with the advice and consent of the Commons in this present Parliament assembled, in accordance with the provisions of the Parliament act, 1911, and by authority of the same, as follows."

(2). Any alteration of a bill necessary to give effect to this section shall not be deemed to be an amendment of the bill.

V. In this act the expression "public bill" does not include any bill for confirming a provisional order.

VI. Nothing in this act shall diminish or qualify the existing rights and privileges of the House of Commons.

VII. Five years shall be substituted for seven years as the time fixed for the maximum duration of Parliament under the Septennial act, 1716.

VIII. This act may be cited as the Parliament act, 1911.

THE CONSTITUTIONAL ISSUE Mr. Asquith introduced the Parliament bill into the House of Commons on February 21. Many points in criticism of the measure were brought out in the debate. The opposition argued that the passage of the Parliament bill would create a single unchecked chamber whose members would have to bow to the tyranny of the government. They accused the latter of being puppets of the Irish Nationalist party. They declared for a House of Lords greatly reduced in numbers, joint sessions, the absolute predominance of the Commons in matters of finance, and recourse to the referendum in cases of grave dispute. They emphasized the conciliatory spirit of their policy and blamed the government for their unwillingness to meet them half way. The Parliament bill passed its first reading on February 22 by 350 to 227, and its second reading at the beginning of March by 368 to 243. Meanwhile the government had met the wishes of the Irish Nationalists by a statement early in the debate that home rule would be taken up immediately after the passage of the Parliament bill.

During the spring a number of amendments were offered by the opposition in the House of Commons for the purpose of mitigating what they characterized as an attempt to set up a single chamber régime. The government combated each of these on the ground that it was without precedent or not applicable. The chief amendments proposed were that a substantial majority of the House of Commons was necessary to carry a bill without the assent of the upper house, that in cases of dispute a bill should be referred to a joint committee of both houses, and that the referendum should be employed as a means of deciding grave questions when all other expedients had failed. All of these were rejected by the government. As to the proposal for a referendum the government declared that it menaced the very foundations of the representative system. The bill passed its third reading in the House of Commons in May by a vote of 362 to 241.

THE PARLIAMENT BILL IN THE HOUSE OF LORDS. In the House of Lords Lord Lansdowne

gave notice early in the session that he would introduce a measure for the reform of the upper chamber. This bill, which was presented on May 8, provided that the House of Lords should be made up (1) of one hundred hereditary peers who had held certain specified official positions and who should be elected by the whole body of hereditary peers; (2) of one hundred and twenty chosen for electoral districts by electoral colleges composed of members of the House of Commons for the constituencies of each district; (3) of one hundred appointed by advice of the ministry of the day in the proportion of the strength of the parties in the House of Commons; (4) of the two archbishops (together with five bishops chosen by the episcopate of England and Wales), and (5) of sixteen peers who have held high judicial office. The term of office was to be twelve years, one-fourth of each of the above classes retiring every third year. It was argued for this measure that the house as thus reconstituted would be a great improvement on the present chamber, and that while it did not give it a Liberal majority it greatly lessened the Unionist preponderance. On the other hand, it was condemned as providing no remedy for the Liberal grievances. Its second reading was debated during the last week in May, at which time the government's Parliament bill was also under discussion. The latter measure thenceforth held the attention of the house and the opposition offered many amendments. These were designed, in the words of Lord Lansdowne, to "protect the country against dangerous and ill-considered innovations." It was soon evident that the government would not accept any of the Lords' amendments, but would if the Lords insisted upon them apply to the throne for the creation of new peers. The Conservatives would thus be in a worse position than before, since they would then have the Parliament bill passed into law and their own body adulterated besides by the infusion of new peers. Such was the situation in the month of July. The stronger element of the opposition, therefore, was disinclined to press amendments which the government refused absolutely to accept. On the other hand, a considerable body of Conservatives were determined to stand by their principles and "die in the last ditch." These argued that the government should be met with unyielding resistance and allowed to cover itself with shame by the creation of new peers. On July 20 the Parliament bill was read for the third time and passed as amended. The amendments provided for the appointment of a joint committee of both houses when a dispute arose between them and for submitting to the electors any measure which the joint committee thought to be of sufficient gravity to require the decision of the country.

THE CONSTITUTIONAL CRISIS. On July 22 Mr. Asquith threw the opposition into consternation by the sudden announcement that he would not accept the amendments to the Parliament bill, and that the king had assented to the creation of new peers to secure the passage of the bill in its original form. It was immediately announced that a considerable portion of the opposition, headed by Lord Halsbury and others, would adhere to the policy of "no surrender." On the other hand, Lord Lansdowne and the majority of the Unionists, comprising over 230 peers, held to the opinion that they must yield to superior force. On July 24 there occurred a very unusual scene of disorder in the House



Courtesy of the Review of Reviews

SIR EDWARD GREY, BART
Foreign Secretary



Courtesy of the Review of Reviews

RIGHT HONORABLE ANDREW BONAR LAW
Leader of the Unionist Party

TWO BRITISH STATESMEN, PROMINENT IN 1911

of Commons, where for the first time in many years a hearing was refused to the prime minister, who desired to address the house in justification of his course. As soon as he arose to speak, cries of "traitor" were raised. The confusion was so great that he could not continue and finally resumed his seat. Mr. Balfour, on the other hand, made an address in which he expressed the opinion of the opposition that the resort to the creation of peers by the prime minister was a serious breach of his responsible duties. It was a misuse of the prerogative of the crown and a blow at the independence of the second chamber. Its one object was to prevent the people from getting any verdict on the question of home rule. Great regret was subsequently expressed for the disturbance in the house. Mr. Balfour and Lord Lansdowne addressed their party earnestly on the necessity of admitting their defeat and maintaining their unity. It was hopeless, they declared, to resist the passage of the Parliament bill and the policy of forcing the Liberals to secure the appointment of new peers would be disastrous. Lord Halsbury and his followers contended for resistance to the utmost and for letting the government suffer the consequences of its own revolutionary folly in creating new peers.

THE VOTE OF CENSURE. The opposition now decided to bring a vote of censure against the government. It was hoped that this would adjust the differences between the extremists who favored the policy of "no surrender" and the majority headed by Lord Lansdowne, Mr. Balfour, and other leaders. The vote of censure was moved on August 7 in the following words: "That the advice given to His Majesty by His Majesty's ministers, whereby they obtained the pledge of a sufficient number of peers to be created to pass the Parliament bill in the shape in which it left this house is a gross violation of the constitutional liberty whereby, among other evil consequences, the people will be precluded from again pronouncing upon the policy of home rule." A sharp debate on the motion took place in the house. Mr. Balfour declared that the ministry had acted in a manner violative of the constitutional traditions and not in obedience to any pressure of public opinion but solely to meet the desires of the section that supported them. It was a wrong to the king and to the country. The government was accused of having obtained a pledge from the king and of keeping it secret. Thus all reality in the discussion of the bill in Parliament was removed, since its passage was a foregone conclusion. Mr. Asquith replied that the government had not obtained any pledge from the king while the bill was pending, but had tendered its advice to him after the Lords had added their amendments. They had taken that course because these amendments were fatal to the purposes of the bill and no other course was open to them. As to the understanding with the king in November, 1910, it was purely conditional. At that time the ministry had informed the king that they could not advise a dissolution unless, if their policy were approved by an adequate majority of the new house, the king would create new peers. To this the king had consented. The government paid no attention to the taunt that it was driven to this action by the Nationalists. The vote of censure was defeated by a majority of 119. On the following day a vote of censure was moved in the House of Lords, where

it was carried by a majority of 214. On August 10, however, the Lords decided by the small majority of seventeen not to insist on the amendments to the Parliament bill, which, therefore, was to go into effect without the necessity of creating new peers for the purpose. It received the royal assent on August 18. It was hoped that the "Forwards" or "Die-Hards," as the followers of Lord Halsbury were called, would acquiesce in the decision of Mr. Balfour and the leaders of the majority of Unionists in the necessity of this course. But despite the emphatic plea of the latter that it was better to yield than to have the House of Lords submerged by new peers, the Halsbury wing of the party continued bitterly opposed, and Mr. Balfour's leadership was in certain quarters called in question.

THREATENED DIVISION IN THE UNIONIST PARTY. As a result of Lord Halsbury's firm stand against the Parliament bill and the rallying to him of the group of irreconcilables known as the "Die-Hards," an organization was formed called the Halsbury Club, for the purpose of restoring a free constitution to the United Kingdom and reviving and maintaining principles that they held to be vital to the nation's interests. This was regarded as a virtual split in the party and as marking the discontent with Mr. Balfour's leadership. Disloyalty to the party and criticism of Mr. Balfour's leadership, however, were disclaimed by its members. It was understood that the chief object of the club was to bring it home to the constituencies that the present methods of the government were unconstitutional, and that the methods of dealing with their revolutionary course might be of a nature that would not be permissible under ordinary conditions. In other words, the plan was to insist on determined opposition to the government's schemes. Among the leading members of this wing of the party, besides Lord Halsbury, were the dukes of Northumberland, Norfolk, and Bedford, Lords Roberts, Selborne, Northcote, and Milner, and Mr. Austin Chamberlain.

THE UNIONIST POLICY. Mr. Balfour's view of the political situation was summarized in a speech early in October in which he condemned the government for plunging the country into a revolution. He said the friends of the revolution were a combination of the Radical, Labor, and Irish parties, which had been formed for the purpose of shackling the British constitution. As to his course in regard to the Parliament bill, he said that the crime which the government had committed was not, in his opinion, its action in July and August, but its treacherous course eight months before in advising the sovereign and getting from him a pledge concerning the creation of new peers. But when the government announced in the summer that unless the Parliament bill were put through without the amendments which had been added in the House of Lords, they would have recourse to the creation of new peers, it was impossible for the opposition to offer any resistance. The opposition could not at that time deal with a crime that had been committed in the previous November, namely, the securing from the sovereign the authority to misuse the royal prerogative for the sake of forcing through Parliament an objectionable measure. What the government sought in its destruction of the veto power was the disestablishment of the church,

"one man, one vote," and above all, home rule. After criticising these measures as mischievous he went on to explain the constructive policy of the Unionist party, which he said comprised, first, the reform of the Poor law; second, the reorganization of the second chamber in such a manner as would obviate its defects and preserve its efficiency and value, allowing it to play its independent part in the constitution, and finally the carrying through of a measure of tariff reform.

MR. BALFOUR'S RESIGNATION. On November 8 Mr. Balfour, who had been a prominent figure in British politics for twenty-five years and had led his party for a decade, announced his resignation of the leadership. He placed it entirely on the ground that old age was approaching and that he wished to abandon his heavy responsibilities before he could be suspected of "suffering from the most insidious of all diseases, a disease which came upon those who, without losing their health or their intellect, nevertheless got somewhat petrified in the old courses which they had pursued." He denied the assertions of some that the party was in bad condition. On the contrary, he believed that it was growing in strength and influence. In conclusion, he said that he had no intention of abandoning political life, but hoped for many years of activity as a member of Parliament. The news of the resignation was received with great regret among both Liberals and Unionists, the former recognizing his uniform courtesy in debate and the high standard that he always had raised in the discussion of public questions. As to his own party, although there had been a suspicion that he was losing his hold as a leader upon certain elements, especially upon the extreme members of the so-called "Die-Hards," there was little evidence to justify it. Only two days before the announcement of his resignation the Halsbury Club had passed a resolution announcing their loyalty to their two leaders, Mr. Balfour and Lord Lansdowne, and assuring them of their support in the coming struggle. Mr. Balfour began his political career in 1875, when he was returned as a Conservative member of Parliament for Hertford. Four years later he became private secretary to his uncle, Lord Salisbury, whom he accompanied to the Congress of Berlin. After the defeat of the Liberals in 1885, Mr. Balfour, who was now returned for East Manchester, became president of the Local Government board in the Salisbury ministry, and in the following year was appointed secretary for Scotland. During the next five years he made his reputation as a party leader in the debates on the Irish question. In 1891 he became first lord of the treasury and the leader of the Conservatives in the House. On the resignation of Lord Salisbury in 1902 Mr. Balfour became prime minister, holding that position until the ministry resigned in December, 1905. On the overturn of the Conservative party in the general election of January, 1906, he lost his seat, but was soon afterwards elected for the city of London and remained the leader of the opposition during all the Parliamentary struggles from 1906 down to the date of his resignation.

MR. BALFOUR'S SUCCESSOR. At a meeting of the Unionist party held on November 13, Mr. A. Bonar Law was unanimously chosen as leader to succeed Mr. Balfour. The recent differences of opinion among the Unionists appeared to

have been removed, and there was every evidence of party unity. Mr. Bonar Law was one of those who had stood by Mr. Balfour when the latter's leadership was called into question by some of the Unionists and had only a few days before his election paid a tribute to Mr. Balfour and expressed his loyalty to the programme for which the latter had stood. The new leader, though not very well known by the country at large, had made an admirable record as an able debater in the House of Commons, and especially as a skillful advocate of tariff reform. He had been a member of Parliament since 1900, when he was elected for the Glasgow constituency. Although he was appointed to no high official position he soon won a reputation by his effective speeches in Parliament and was characterized by Lord Lansdowne in a speech in March, 1909, as "one of the Dreadnoughts of the Unionist party." His selection was generally regarded as a wise one and as promising unity in the party councils.

SIDNEY STREET OUTRAGE. On December 16, 1910, three London policemen were killed and two wounded in an attempt to capture burglars who were endeavoring to break into the shop of a Houndsditch jeweler. Several arrests were made and two of the suspected criminals were traced to a house in Sidney Street, Mile End-road. On January 3, the police surrounded and isolated the house. The other inmates were removed and a regular siege was begun. The criminals were well equipped with arms and ammunition and kept up a fusillade from the upper window. The police failed to dislodge them, it was decided to summon the military, and a detachment of the Scots Guards was sent to the scene from the Tower. Crowds gathered at the extraordinary spectacle of a battle in the London streets. Mr. Winston Churchill, the home secretary, himself appeared on the scene and offered suggestions as to the method of proceeding, though he did not take actual command. Finally the house took fire; the two criminals were burned, and their charred bodies were afterwards found in the ruins. A number of the attacking party and several civilians were wounded. The artillery was called out, but reached the scene after the fire had broken out. The incident led to much discussion and criticism. The crime was imputed to anarchist agitation, the number and activity of the anarchists in London having recently increased. Mr. Churchill was criticised for visiting the scene in person, and there were adverse comments on the calling out of the military. The affair led to many suggestions as to the reform of the Aliens act, with a view of excluding undesirable aliens. The chairman of the committee which framed the main features of that act declared that its provisions for expulsion should be greatly widened and strengthened. He said that under the workings of the act at present many aliens who misconduct themselves are not expelled. He advocated the expulsion of certain offenders as a matter of course without the exercise of discretion, and the rendering of disobedience to an expulsion order a more serious offense.

TRADES UNION BILL. This measure was introduced by Mr. Churchill on May 24. It provided that the minority in the union should be relieved from the obligation to subscribe funds for political purposes. It gave the right to the unions to contribute money for such purposes

if the majority voted for it, but the payments must be made out of a separate fund, and any member might be exempted from the obligation upon giving notice of his unwillingness to contribute. Nor could contributions for political purposes be made a qualification for membership. The opposition condemned the bill as not really guaranteeing the rights of the minority, while Labor members, on the other hand, objected to the setting up of minority rights, which should not be permitted. The Trades Union Congress in September refused to accept the bill unless so amended as to embody the reversal of the Osborne judgment. Finally, in October the government announced that it would not proceed with the bill during 1911.

IMPERIAL CONFERENCE. At the Imperial Conference of 1907 it was decided that a meeting should be held every four years. It provided also for an Imperial Defense Council in the interval. The latter was held in 1909, and on May 23, 1911, the Imperial Conference opened its sessions in London. It comprised the six premiers, Mr. Asquith of the United Kingdom, Sir Wilfrid Laurier of Canada, Mr. Fisher of Australia, General Botha of the South African Union, Sir Joseph Ward of New Zealand, and Sir E. P. Morris of Newfoundland, accompanied by certain ministers from their respective cabinets. Early in its session Sir Joseph Ward moved that an imperial council of state be established, composed of representatives from all the self-governing parts of the empire for the purpose of providing for imperial unity, the imposition of equal burdens on the component parts of the empire, imperial defense, representation for the purpose of taking part in the questions of peace and war, immigration and emigration, and amount of contributions to the imperial treasury. On the discussion of this resolution many objections were raised to it and it was generally regarded by the other premiers as impracticable. Moreover, they declared that it was not advisory, as the author had maintained, but was legislative. In view of the opposition it was withdrawn by Sir Joseph Ward, without being brought to a vote. In the last days of May the five premiers from overseas met with the committee of imperial defense, which consisted of the premier, Mr. Asquith, and the chief members of his ministry. This amounted to a sort of imperial cabinet and was of importance as taking oversea premiers into the confidence of the imperial government. Its objects were kept secret and no report was issued. The conference adopted on June 1 the Declaration of London. Mr. Fisher of Australia regretted that the dominions had not been consulted before the British delegate accepted the terms of the declaration. He objected to the inclusion of foodstuffs and the rules which permitted the destruction of neutrals. The government agreed that the dominions ought to be consulted, and declared that this would be done before the next Hague conference and upon any matter that may arise from that conference. As it would be some time before the convention would be signed, the dominions would have a chance to discuss the results of the findings of the Hague conference thoroughly. The government declared its belief that the Declaration of London marked a great advance in international agreements, promoted arbitration, and was of a distinct advantage to Great Britain. The premiers agreed in the government's policy

as to the declaration, and a resolution was finally passed to this effect, the Australian premier, however, not voting. It had been proposed that a standing committee should be appointed to preserve the continuity of the imperial conference between its meetings, but this proposal was finally withdrawn. One of the subjects discussed by the conference was the promotion of migration within the empire. Mr. Burns appeared before its members and said that this object had generally been accomplished since the last conference. A resolution was passed requesting the imperial government to negotiate with foreign countries having commercial treaties which apply to British overseas dominions with a view to securing to a dominion the right to withdraw from such a treaty, if it desired. Another resolution provided for an imperial commission to investigate and report on natural resources and trade conditions in the dominions. Other resolutions dealt with the interchange of civil servants, navigation law, uniformity in law, emigration, naturalization, legislation as to the destitute, undesirable aliens, etc. "All Red" routes, including a scheme for imperial wireless telegraphy, and the question of Indian immigration, were discussed, but without definite action.

THE CORONATION. The coronation took place on June 22. Coronation Day was a bank holiday and celebrated throughout the United Kingdom. On June 30 there was a royal progress through the city, and on the following day the fleet was reviewed at Spithead. There were over 150 vessels of the home and Atlantic fleets, and the warships of many foreign powers were present. London had been crowded for weeks with visitors from all parts of the world, and the festivities lasted through the greater part of June and July. The king and queen visited Ireland in July. Investiture of the Prince of Wales took place at Carnarvon Castle on July 13.

HOME RULE. The condition imposed by the Irish party in regard to home rule was that it should have precedence not only over any other measures, but of any federal plans. At the beginning of March the cabinet were considering a scheme of home rule, and were ready to accept the Nationalist conditions as to its precedence. There were debates on home rule in February and April. On the former occasion a suggestion of Mr. Asquith's was taken as meaning that the government scheme would be modeled on the South African constitution. There was much speculation as to the nature of the government's plan for home rule. In the latter part of October, Mr. Birrell, chief secretary to the lord-lieutenant of Ireland, in replying to the demand that he explain the nature of the government's Home Rule bill, declared that its scheme involved all Irish parliament consisting of two chambers, with an executive responsible to it, and with full representative powers and control over purely Irish concerns. He said that the government was obliged to face the Irish question and would do its best next year to satisfy the demands of the overwhelming majority of the Irish people. Mr. Redmond about the same time in the course of an address, declared that he could not discuss the measure in detail, but that it would be entirely satisfactory to the Nationalists in Ireland. Attempts to draw out the ministry on the subject were unsuccessful. Mr. Asquith merely said that the

measure would be submitted in February or March, 1912. Mr. Balfour opened the speech-making campaign against it by a vigorous address on November 6, attacking the arguments of its advocates. Meanwhile the Ulster Protestants continued their agitation against it. In September a meeting of Ulster Unionists passed resolutions solemnly pledging themselves not to recognize a home rule government and choosing a commissioner to draw up a plan for a provisional government for Ulster, which should come into operation if a home rule measure passed.

THE SUFFRAGE QUESTION. On Saturday, June 17, there occurred in London a remarkable demonstration on behalf of woman suffrage. More than 40,000 women were said to have marched in a procession, which included historical pageants illustrating the activity of women in public life. It was followed by a mass-meeting at Albert Hall, at which £100,000 were raised. On November 7, Mr. Asquith announced that the government would introduce during the next session a measure providing for "one man, one vote," the sole qualification for the vote to be that the man should be a bona fide resident or inhabitant. The measure was to sweep away the present technical qualifications and introduce the principle of a man's right to vote as coming from the simple fact that he is a citizen. As to woman suffrage, his views had not changed, but it would be possible for Parliament to decide whether the measure should be extended to apply to women. This announcement provoked an immediate protest from the woman suffragists as shelving the Conciliation bill, which had been introduced on November 14, 1910, and which extended the parliamentary franchise to women occupiers. They declared that they rejected with contempt the proposal that their franchise could depend upon a mere amendment to the projected Reform bill, and they warned the government that they would revert to their militant tactics. The protest made no impression on the ministry and the suffragists proceeded to carry out their threats of public disturbances. On the night of November 21, they gathered at Caxton Hall, whence they started in procession to Parliament Square. The procession was scattered by the police, but other women, apparently acting on a concerted plan, had gathered in the streets and set about breaking windows. They smashed the windows of a number of the government buildings and newspaper offices. Many arrests were made.

NATIONAL INSURANCE. The National Insurance bill provided first for compulsory insurance against sickness and invalidism for the entire working population (with certain specified exceptions) whose incomes were below £26 a year, and for voluntary insurance for those whose incomes were below £160, the period covered being the working years, that is to say, from sixteen to sixty-five; and secondly, for unemployment insurance in certain specified trades. About one-half of the cost was to be met by the workmen and the remainder divided between the government and the employer. It passed its second reading toward the end of May. In the course of the debates much opposition was brought out on the part of physicians, who objected to the smallness of the fee. On the other hand, the friendly societies objected to it as too high. The British Medical Association succeeded in getting a backing of some 16,000

names, and a considerable fund for defense against the bad features of the measure. Physicians generally organized against the bill. When the autumn session of Parliament was opened on October 24, the prime minister announced that ample time would be allowed for its discussion, but its opponents complained that in view of its complexity and the great number of its clauses the government was rushing it through with too ruthless an exercise of its closure. It was the chief measure before the autumn session. The opposition was directed chiefly to the medical provisions and to the plan for the insurance of domestic servants. The latter led to an organized mass-meeting of servants and mistresses at Albert Hall on November 29 to protest against it. They contended that the bill would compel them to pay for what they did not need and would inflict upon them an enormous loss. Both mistresses and servants declared that if the bill were passed they would not pay. When the bill came to its third reading on December 6 in the House of Commons the opposition offered a reasoned amendment, declaring that public funds and individual contributions would not be used to the best advantage under the provision dealing with health insurance and that since the measure had not been adequately discussed or fully explained to the country it should be further considered in the next session. This request for a postponement was voted down by a majority of 320 to 223. Thereupon the third reading was carried by a majority of 303. In the debate the opposition urged that to postpone the measure would not have a wrecking effect, but would on the contrary greatly improve it. They maintained that their attitude was consistent with their original promise, that they would coöperate with the chancellor of the Exchequer in perfecting the details of the measure. The chancellor in reply said that since the bill had been before the country for eight months and under consideration of Parliament for forty or fifty days it was not desirable to reopen discussion. Every important feature of the bill had been discussed, and although the closure had been applied it had been used with greater fairness than upon any previous measure of the same character. He attacked the opposition vigorously for not having supported the government loyally. He belittled the agitation of the domestic servants as the result of misrepresentation in the press and of the interference of interested parties. Mr. Bonar Law attacked the measure as a plan for giving most to those who need it least and as employing unfair financial methods. He held that it did not represent the real opinions of the House and he accused the chancellor of having shown himself a bitter political partisan in his methods of rushing the bill through. The government, on the other hand, taunted the opposition with shifting and indirect methods and asked why they had not moved a direct negative to the motion for the third reading. Outside Parliament the criticisms of the bill had much the same form. It was condemned as a hasty measure. It was urged that its provisions should all be considered by a commission of experts. The House of Lords was advised either to apply the suspensive veto accorded to them by the recent Parliament act or to introduce the referendum and submit the matter to the judgment of the electors. See **WORKINGMEN'S INSURANCE**.



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THE CORONATION OF KING GEORGE AND QUEEN MARY
THE SCENE ON PICADILLY, LONDON

THE ROYAL VISIT TO INDIA. On November 11 the king and queen sailed for India on board the battleship *Medina*. The proposed visit had been the subject of much discussion. It was the first time that a British sovereign with his consort had visited his Indian dominions, and it was taken as the beginning of a new policy toward that portion of the empire. Their majesties were to attend in person the Coronation Durbar on December 12, for which preparations of an elaborate nature had been made. There was some criticism of the government for advising their majesties to leave the country during a period of unrest, but in the main, it was thought that it could have no bad result, but would, on the contrary, inspire confidence rather than alarm, since it could hardly be thought that war was likely when the king left his throne to go to a distant part of the world. Much was hoped of the visit as a means of promoting the good-will of the Indian people. See **INDIA, History**.

OTHER FEATURES OF THE YEAR. The year was marked by serious labor troubles. The long-threatened international seamen's strike was announced at the leading ports on June 14. It arose from a demand for higher wages and for the establishment of a national conciliation board. Dockers and carters joined in the strike, which lasted for several weeks and assumed serious proportions. Riots and collisions with the police took place at Manchester, Liverpool, Hull, Cardiff, and Glasgow. A national railway strike was declared on August 17, threatening prolonged and serious disturbance of the country's industries, but the board of trade at once held conferences with the men's delegates, and on August 19 a settlement was reached and the strike declared at an end. Both sides accepted the government's offer to appoint a royal commission to investigate the conciliation scheme of 1907 and to report on the changes in it that seemed necessary. The report of the royal commission (October 20) was not satisfactory to the men, and it was feared that the strike would be renewed, but toward the close of the year the men accepted the arrangement. (See **ARBITRATION AND CONCILIATION**.) A general railway strike was declared in Ireland on September 18, originating from the dismissal of two railway porters for refusing to handle the timber of a company whose men were on strike, but public opinion was against it from the start, and it soon proved a failure. In the closing days of the year a strike in certain Lancashire cotton mills was answered by lockout, which threatened to involve 160,000 weaving operatives and a nearly equal number of spinners. (See **STRIKES AND LOCKOUTS**.) A general arbitration treaty between Great Britain and the United States was signed at Washington on August 2, but down to the close of the year was awaiting the action of the United States Senate. (See **UNITED STATES, History**.) The question of reciprocity between Canada and the United States was much discussed by British newspapers and public in its bearing on imperial interests. Many argued that reciprocity was a step toward annexation. (See **CANADA, History**.) For a further account of imperial affairs, see the articles on British overseas dominions and colonies. For details of Great Britain's part in the Moroccan affair, see **MOROCCO, History**; also **FRANCE** and **GERMANY**, under *History*. For an account of other phases of British foreign

relations, see **PERSIA**, **CRETE**, **CHINESE EMPIRE**, and **UNITED STATES**, under *History*; also **GERMANY**, paragraph on *Bagdad Railway*. See also **SOCIALISM**; **ARBITRATION**, **INTERNATIONAL**; and the various articles on social, economic, and political topics. See also **ARCHÆOLOGY** and **ARCHITECTURE**.

GREECE. A constitutional monarchy in southeastern Europe; divided into twenty-six nomes, or departments. Capital, Athens.

AREA, POPULATION, ETC. Area, 24,973 sq. miles. Population (1907), 2,631,952; 1909 estimate, 2,606,000. Emigration to the United States in 1906-7, 36,580; in 1907-8, 21,489; in 1908-9, 14,111; in 1909-10, 25,888. Athens had (1907), 167,479 inhabitants; Piræus, 71,505; Patras, 37,724; Volo, 23,563.

AGRICULTURE. Area under cultivation, 5,563,100 acres (cereals, 1,112,000; fallow, 1,200,000; forest, 2,025,400), besides 53,000 rendered available by the draining of Lake Copais. In addition, about 5,000,000 acres are in natural pastures and 3,000,000 waste land. Currants are the main crop for export (yield 1909-10, 155,000 tons).

MINING. The mineral output (in metric tons) in 1907, with the value in pounds sterling, is given as follows: Iron, 768,883 (£228,973); manganiferous iron ore, 92,770 (£44,015); zinc ore, 30,346 (£119,673); manganese, 11,139 (£9552); chromite, 11,730 (£19,706); magnesite, 60,248 (£54,702); lignite, 11,139 (£9552); emery, 10,589 (£45,109); salt, 26,066 (£108,046); lead (argent.), 13,814 (£313,500).

COMMERCE AND COMMUNICATIONS. The trade for three years is given below in drachmas (1 drachma = 19.3 cents):

	1908	1909	1910
Imports	152,635,000	135,907,000	158,504,775
Exports	109,244,000	101,413,000	137,544,625

The principal articles of special trade for 1909 are given below in thousands of drachmas:

	Imps.	1000 dr.	Exps.	1000 dr.
Cereals	32,165		Currants	32,705
Textiles, etc.....	19,705		Wine	9,906
Coal	10,503		Lead (argent.)...	7,699
Timber	8,904		Tobacco	7,585
Chem. prods.....	6,733		Iron	5,462
Fish	6,777		Zinc	4,002
Mins. & mets.....	5,890		Olives	2,733
Animals	4,078		Olive oil.....	2,258
Paper	3,394		Figs	3,983
Skins	3,439		Grapes	1,600
Coffee	2,634		Silk (raw).....	2,669

Principal countries of origin and destination (1909): Great Britain—Imports, 31,127,000 drachmas; exports, 25,385,000; Russia, 26,781,000 and 1,447,000; Austria-Hungary, 17,282,000 and 10,265,000; Germany, 12,282,000 and 10,159,000; Turkey, 11,649,000 and 6,386,000.

Vessels entered (1907), 6412, of 4,812,834 tons. Merchant marine (1911): 283 steamers, of 301,785 tons; 811 sailing vessels, of 145,284.

Railways open (1911), 1609 kilometers (1000 miles). Telegraph lines, 4951 miles; post offices, 1147.

FINANCE. The drachma (worth 19.3 cents) is the monetary unit. Revenue and expenditure for three years follow (1911 estimate).

	1907	1908	1911
Revenue	126,382,258	128,301,087	234,331,604*
Expenditure ..	133,700,371	128,767,739	187,972,500

* Including 95,601,101 extraordinary.

Of the estimated revenue for 1911, indirect taxes accounted for 60,573,001 drachmas, direct taxes 23,095,201, stamps 16,527,000; estimated extraordinary revenue, 95,601,101. The larger estimated expenditures were: Public debt, 79,028,811 drachmas; finance, 26,535,902; war, 21,312,018; interior, 18,626,846.

On December 31, 1910, the gold debt stood at 692,530,500 drachmas; the internal paper debt, 160,225,845 (including 71,775,975 in paper money).

ARMY. During the year 1911 active reorganization of the Greek army was in progress, according to a law passed in 1909, and the complete operation of the scheme was designed to be effective by 1912. Military service is compulsory and begins at the completion of the nineteenth year, instead of the twenty-first, as was provided by the conscription law of 1904. The skeleton organization of the army was already in effect in 1911, and provided for a military force of three divisions, each composed of 3 brigades of infantry formed by two battalions of infantry, a battalion of *evzones* (national militia), and a machine-gun section, 1 regiment of field artillery, and 1 battalion of mountain artillery, 1 regiment of cavalry, 1 battalion of engineers, and 2 companies of train. This would give 18 regiments of infantry, 9 battalions of *evzones* (national militia), 3 regiments of cavalry, 3 regiments of field artillery, 1 regiment of heavy artillery, 3 battalions of mountain artillery, 3 battalions of engineers, 2 companies of pontoniers, 2 companies of telegraphers, 1 railway company, 1 company of firemen, and 6 companies of train. When these forces are fully organized the active army will have a strength of 20,000 to 25,000. The old organization was being transformed into the new as rapidly and effectively as possible. There was also provided a first reserve, which, with the active army, would give a war strength of 200,000, which, with the second reserve and national guard, could be increased to 250,000. Schneider-Canet quick-firing field guns were being provided for the artillery, and much interest was being manifested in the army. The government has a French military adviser, General Eydoux.

NAVY. The effective navy includes the armored cruiser *Georgios Averoff* (purchased 1910, launched 1908), of about 10,000 tons; 3 coast-defense vessels of about 4800 tons each, 12 modern destroyers and torpedo boats, and a few gunboats and torpedo craft of small importance. A submarine was launched April 2, 1911, and another is said to be building. Personnel, about 4000. In April, 1911, Rear-Admiral Lionel G. Tufnell was appointed naval advisor to the Greek government. He retired from the British navy to accept the appointment, and in September put forward a programme looking to a strength in 1921 of 3 armored cruisers, 20 destroyers, 10 torpedo boats, and 3 submarines.

GOVERNMENT. The king (1911, George I.) is the executive, aided by a responsible ministry. The legislative body is the National Assembly. The ministry (constituted October 19, 1910) was composed in 1911 as follows: Premier, Minister of War and Marine, E. Venezelos; Finance, L. Koromilas; Interior, E. Repoulis; Justice,

N. Dimitrakopoulos; Worship and Instruction, A. Alexandris; Commerce and Agriculture, E. Benakis; Foreign Affairs, J. Gryparis.

HISTORY. The elections to the Revisionary Assembly, of December, 1910, returned M. Venezelos to power with a majority of about six-sevenths of the chamber and he resumed the premiership with the portfolios of war and marine. The chamber was opened on January 21, and on February 7 the government submitted its plan for the reform of the constitution. Its chief features were as follows: The restoration of the Council of State; the right to appoint foreigners to government services; compulsory elementary education; reduction of the number of deputies to about 110; the appointment of judges for life; abrogation of the king's right to adjourn Parliament more than once in a single session without the consent of the chamber; Parliamentary disqualification of military and naval officers, civil servants, and bank managers. The Council of State, which had been abolished in 1865, had power to elaborate bills and to annul or appeal official decisions and acts contrary to law, also disciplinary control over civil servants, except magistrates. The chamber adopted the new constitution, and it was signed by the king on June 14. In June the rupture with Rumania came definitely to an end and a Rumanian minister arrived at Athens. The strained relations between the two countries had existed since 1905, and arose from Rumanian retaliation against Greek outrages. In June the crown prince and princess visited England to attend the coronation. See CRETE, *History*; and ARCHEOLOGY.

GREENE, WILLIAM CORNELL. An American capitalist, died August 5, 1911. He was born in Westchester county, N. Y., in 1851. He left home at the age of seventeen years and started for the West in search of a more active life. From this until his retirement his life was one of ceaseless adventure. His first work in the West was as a government contractor in Colorado. He then went into ranching in Arizona. He was prosperous in this enterprise and, taking advantage of the Mexican law allowing prospecting on lands already granted for pasturage, he crossed the border into the state of Sonora and located eight mines on a large tract which had been purchased for grazing purposes by a syndicate of Californians. This syndicate was glad to sell out for a small sum rather than fight condemnation proceedings. This property afterwards developed some of the richest copper mines in the world. Greene then organized and became president of the Greene Consolidated Company, the Greene Gold and Silver Mining Company, the Greene Cattle Company, the Turkey Tract Cattle Company, and was identified with other corporations. He secured money to finance these enterprises in the East. In 1892, he headed a syndicate of four men, which bought a tract of 7,500,000 acres in Sonora, Mexico, for a ranch which was intended to be the largest in the world. In the following year he reached the height of his prosperity as a financier when his companies had a capitalization of nearly \$100,000,000 of which Greene owned more than half. In the fall of that year a systematic attack was made on his securities by John W. Gates and others. This resulted in a great drop in the shares of the stocks. He afterwards obtained a concession of 4000 square miles in Mexico and or-

ganized the Greene Gold-Silver Company and the Sierra Madre Land and Lumber Company, issuing securities to the amount of \$43,000,000. These, however, did not sell and he found himself without funds to develop the properties. He was forced to give up the control of the Greene Consolidated Company through attacks made by the Rogers Amalgamated copper interests and it was not long before he was deprived of most of his power and much of his properties. The panic of 1907 finished the fall of his fortunes and he left for Japan, hoping there to secure capital to put himself and his enterprise on a stable footing. This he was unable to do. Returning, he abandoned his office in New York and returned to his properties in Cananea. In June, 1906, his mines at this place were the scene of serious rioting by striking Mexican miners. These riots were put down by Arizona rangers, who crossed the border at the invitation of the governor of Sonora. Greene took part in several expeditions against the Indians in the Southwest.

GREENLAND. A Danish colony in the Arctic region. Area between 500,000 and 800,000 sq. miles (colonized area, about 46,740). Population (February 1, 1911), 12,968. Imports (1909), £72,111; exports, £26,500. A director (C. Ryberg in 1911) administers the colony from Copenhagen.

GREENLEAF, CHARLES RAVENSCROFT. An American physician and soldier, died September 3, 1911. He was born in Carlisle, Pa., in 1833, and was educated in Boston and Cincinnati. He studied medicine, graduating from the Ohio State Medical College in 1860. He enlisted in the Civil War as assistant surgeon of the Fifth Ohio Infantry. He served throughout the war, being promoted to captain and assistant surgeon. He was made major and surgeon in 1876, lieutenant-colonel and assistant medical purveyor in 1891, colonel and assistant surgeon-general in 1896. In 1902 he was retired. He was made brigadier-general by act of Congress of April 23, 1904. He was one of the most conspicuous medical officers during the Civil War. He built the Mower General Hospital at Chestnut Hill, Philadelphia, in 1862 and was executive officer of this institution. He served on the staffs of Generals McClellan, Lew Wallace, Hancock, Wright, and Thomas. In addition to his service during the Civil War he was chief medical officer during the Pittsburgh riots and served through several Indian campaigns. He was the author of the present system for personal identification of soldiers in the United States army. He organized the hospital corps of the United States army and originated and organized the ambulance service in San Francisco. During the Spanish-American War he was chief surgeon of the army in the field, serving in Cuba and Porto Rico. In 1900 he was chief surgeon of the Division of the Philippines on the staffs of Generals Otis and MacArthur. He served as professor of public and military hygiene at the University of California. He was the author of *Greenleaf's Manual for Medical Officers*, and *Greenleaf's Epitome of the Examination of Recruits*. He wrote also *A System of Personal Identification in Buck's Handbook* and in medical journals. He was a member of many medical societies and was a delegate to many medical congresses. He took a prominent part in the organization of the Red Cross Society.

GREGORY, ROBERT. A clergyman of the Church of England, died August 2, 1911. He was born in 1819 and was educated at private schools and at Corpus Christi College, Oxford. From 1843 to 1853 he served as curate in various parishes and from 1853 until 1873 he was rector of the Church of St. Mary the Less at Lambeth. In 1868 he was appointed canon of St. Paul's, serving in this position until 1891, when he was made dean of St. Paul's. Dr. Gregory was best known as the champion, in the earlier days of the great controversy, of religious education in elementary schools and the prime mover in the transformation which the last forty years have witnessed in the service of St. Paul's cathedral. He conceived the idea for the first time of bringing the whole cathedral constantly into use as the centre of diocesan life and of a continuous popular and dignified worship. Through untiring efforts he brought this about and St. Paul's became, under his administration, a popular place of worship. He was not a great preacher, but had marked practical and executive ability. His writings include *A History of Elementary Education* (1895) and *Lectures at St. Paul's; Sermons, etc.*

GRENADA. A British colony; the largest of the Windward Islands (q. v.), with an area of 133 sq. miles and a population (census of 1911) of 66,750. St. George's, the capital, had 4916 inhabitants. Agricultural population, 17,955. Imports (1910), £279,368; exports, £291,760. Revenue (1910-11), £81,413; expenditure, £75,561. Sir James Hayes Sadler was governor of the colony in 1910-11. Part of the Grenadine Islands are attached to Grenada.

GRENADINE ISLANDS. See **GRENADA**.

GRENFELL, W. T. See **LITERATURE, ENGLISH AND AMERICAN, Travel and Contemporary History**.

GRONNA, ASLE J. United States senator from North Dakota. He was born at Elkader, Iowa, in 1858. He was reared on a farm and educated in the schools of Houston county, Minnesota, and Caledonia Academy. In 1879 he removed to South Dakota and engaged in farming and banking. In 1889 he was a member of the Territorial legislature. He took an active part in politics and was elected to the Fifty-eighth, Fifty-ninth, Sixtieth, and Sixty-first Congresses. On the resignation of Senator Purcell in the latter part of 1910 he was appointed to fill out the unexpired term.

GUADELOUPE. Islands of the Lesser Antilles, forming a French colony. Area, 687 sq. miles; population, 190,273. Agriculture is the chief industry, and sugar, cacao, coffee, tobacco, and tropical fruits are grown. Imports (1908), 15,077,000 francs; exports, 17,361,000. The French budget shows (1911) an expenditure of 356,568 francs on the colony. The local budget balanced in 1909 at 4,878,757 francs. Governor, 1911, M. Gautrel.

GUARANTEE OF DEPOSITS. See **BANKS AND BANKING**.

GUATEMALA. A Central American republic. Capital, Guatemala City.

AREA, POPULATION, ETC. The usually accepted estimate of area is 48,290 sq. miles. Another estimate is 113,030 sq. kilometers (43,641 sq. miles). There is an unsettled boundary dispute with Honduras. Estimated population (December 31, 1909, 1,992,000, about 60 per cent. Indian, and most of the remainder mestizo. Estimated populations of the larger

towns: Guatemala City, 125,000; Cobán, 30,770; Quezaltenango, 28,940; Totonicapán, 28,310; San Pedro, 10,100. Primary education is free and nominally compulsory. Public schools in 1910, 1670, with over 54,000 pupils. There are several institutions for professional and special instruction.

INDUSTRIES AND COMMERCE. The people are engaged chiefly in agriculture and cattle-raising. The principal crops are coffee, corn, sugar-cane, bananas, tobacco, and cacao. There is some exploitation of cabinet woods, rubber, and chicle. The value of agricultural and forest products in 1910 is reported at 428,825,082 pesos (paper), of which 92,705,080 pesos represented coffee, 66,880,800 corn, and 30,783,303 wood. Mining and manufacturing have not attained much importance.

The latest available commercial statistics are for 1909, when imports were valued at \$5,251,317 and exports \$10,079,219, against \$5,811,586 and \$6,766,143 in 1908. The only large export is coffee, which amounted to 88,162,742 lbs., valued at \$8,816,274, in 1909; hides, \$308,685; wood, \$263,573; bananas, \$229,566. Imports from the United States and exports thereto, \$2,181,859 and \$5,828,554 respectively; Germany, \$1,249,559 and \$2,739,075 (Germany receives about one-half of the coffee); Great Britain, \$1,135,420 and \$1,006,263.

COMMUNICATIONS. Length of railways in 1910, 724 kilometers (450 miles). San José and Champerico, on the Pacific, are connected with Escuintla, Mazatenango, and Guatemala City, the lines aggregating 189 miles. Guatemala City is connected with Puerto Barrios, on the eastern coast, 195 miles. There are several short lines, and several others are projected or under construction. Telegraph lines, over 4200 miles; offices, 208. Post offices, about 200.

FINANCE. Revenue and expenditure, in thousands of pesos paper, have been as follows for fiscal years:

	1906	1907	1908	1909	1910
Revenue.....	30,501	35,298	37,336	49,240	51,571
Expenditure....	45,733	44,560	49,930	70,554	45,959

Over one-half the revenue is derived from customs, and one-third from spirits, tobacco, etc. In 1910, the ordinary expenditure for the administration was 17,358,294 pesos, and for the debt 28,601,116 pesos. Budget for 1910-11 showed an expenditure of 36,948,238 pesos; for 1911-12, 37,417,217 (22,000,000 for the debt, 2,578,760 public instruction, 2,343,996 war). Debt, December 31, 1910, foreign \$13,694,446 and £1,482,800, with arrears of interest £711,747; interior, 71,884,745 pesos paper. The approximate average value of the paper peso was 9 cents in 1906, 8 in 1907, 6½ in 1908, and 6 in 1909; during 1910 it fluctuated between 7 and 10 cents.

ARMY. Military service from the eighteenth to the twenty-fifth year is required by statute, and this supplies a standing army maintained at a strength of about 7000 men. By enrolling citizens from twenty-six to fifty years of age a national militia with an estimated strength of 57,000 is obtained.

GOVERNMENT. The executive authority is vested in a president, elected by direct vote for six years, and assisted by a cabinet of six members and a council of state of 15 members (of which the cabinet is a part). The legislative

power rests with the unicameral National Assembly (69 members). The president in 1911 was Manuel Estrada Cabrera, who succeeded to the executive office in March, 1898, and subsequently was elected for terms ending March 15, 1905, 1911, and 1917. First and second designados (elected by the assembly), Gen. Mariano Sarano and Gen. Manuel Duarte.

GUIANA. See **BRITISH GUIANA**; **DUTCH GUIANA**; **FRENCH GUIANA**.

GUILD, CURTIS. An American journalist, died March 12, 1911. He was born in Boston in 1827, and was educated in the public schools of that city. He began newspaper life on the *Boston Daily Journal* and was afterwards employed on the *Boston Daily Traveller*, of which he became one of the proprietors. In 1859 he founded the *Boston Commercial Bulletin* and was its editor until 1898. For twenty-five years he was president of the Bostonian Society. He was the father of Curtis Guild, Jr., governor of Massachusetts from 1906 to 1909. He was the author of *Over the Ocean* (1871); *Abroad Again* (1877); *Britons and Muscovites* (1888); *From Sunrise to Sunset* (verse, 1893), and *A Chat about Celebrities* (1896).

GUILMANT, FÉLIX ALEXANDRE. A French musician and composer, died April, 1911. He was born at Boulogne in 1837, and received his early instruction from his father, who was a professional musician. He made a study of the organ with Lemmens, and of harmony with Carulli. When but twelve years of age he was enabled to assist his father as substitute at the organ of the church at Saint Nicolas. In 1853 he was appointed organist of the church of Saint Joseph. He was appointed choir-master of Saint Nicolas in 1857 and of La Trinité in 1871. In 1896 he was appointed professor of the organ at the Paris Conservatory. He was the foremost exponent of the distinctively French school of organ music and on that account, as well as for his brilliancy as organist, met with great success in his tours of England, Italy, Russia, and the United States. His published works include many solos, choruses, and pieces for the orchestra, a symphony for organ and orchestra, several organ sonatas, and many smaller pieces for the organ. His vocal compositions include motets, masses, and choruses.

GULF OIL FIELDS. See **PETROLEUM**.

GUN, CEMENT. See **CEMENT GUN**.

GUTHRIE. See **OKLAHOMA**.

GYMNASTICS. The thirteenth annual intercollegiate gymnastic meet was won by the Yale team, which was also the victor in 1910. Yale rolled up a total of 25 points. Rutgers was second with 8 points and Pennsylvania third with 7 points. Other colleges to score points were: Harvard 5, Princeton 5, Columbia 2, Haverford 1½, and New York University ½. The all-round championship was won by F. Callahan of Yale. The Western intercollegiate championship went to Illinois, Chicago being second and Wisconsin third. In dual college contests Yale beat the U. S. Naval Academy 27½ to 17½, Princeton 38 to 16, and New York University 36 to 18, Rutgers defeated Amherst 37 to 15½, and tied with Lehigh 24 to 24; Pennsylvania defeated Haverford 35 to 13, Lehigh 43 to 11 and Princeton 33 to 21; New York University defeated Lehigh 29 to 25 and Columbia 33 to 21.

The club championship of the Amateur Athletic Union was won by the West Side Y. M. C. A., which scored 25 points. The New York Turn Verein was second with 13 points and the Germania Turn Verein of Cleveland third with 9 points. The all-round championship was won by Paul Krimmel of the New York Turn Verein, who made 147.70 points. W. Heisler, of the Bohemian Gymnastic Association, was second, and E. A. Henning of the Germania Turn Verein, third.

HAASE, FRIEDRICH. A German actor, died March, 1911. He was born in Berlin in 1826. He was attracted toward the theatre in his early youth and to qualify himself he studied for two years under the direction of the poet Tieck. In 1846 he made his debut at Weimar, and acted there until 1848, when he appeared at Potsdam and Berlin. He rose to prominence during his connection with the theatre in Prague in 1849-51. For a long time his progress in his profession was hindered by an imperfection in his utterance, which was overcome only after years of struggle. He increased his reputation by performances at Karlsruhe and Munich, and from 1855 to 1858 at Frankfurt. He traveled extensively, gradually acquiring recognition as a capable and impressive actor in tragic parts. He played at St. Petersburg through the six winters from 1860 to 1866 and firmly established his position in the front rank of German actors. Returning to Germany he became director of the Court Theatre at Coburg, which position he held in 1867-8. In 1869 he visited the United States, where his talents were at once recognized. From 1870 to 1876 he occupied the position of director of the Municipal Theatre in Leipzig. He visited the United States again in 1882, appearing in a number of classical and modern characters. In 1892 he retired from the stage into private life. Among the most famous of his parts were those of Wurm in *Kabale und Liebe*, Carlos in *Clari*, and Mephistopheles and Richard III. He was also excellent in parts in which eccentric characters could be illustrated by minute and delicate detail. He received many honors and decorations in recognition of his talent.

HAGUE TRIBUNAL. See **ARBITRATION.**

HAITI. A republic occupying the western part of the West Indian island of Haiti. The capital is Port-au-Prince.

AREA, POPULATION, ETC. Estimated area, 10,200 square miles. The population was estimated in 1908 at 2,079,700, nine-tenths negroes and most of the remainder mulattoes. Principal towns, with estimated population: Port-au-Prince, 100,000; Cape Haitien, 30,000; Les Cayes, 25,000; Gonaïves, 18,000. Since 1910 primary instruction has been nominally compulsory, but the educational system is very imperfect. There are some 400 national schools, besides a few private schools and five lycées. The prevailing religion is Roman Catholicism.

INDUSTRIES AND COMMERCE. The leading crop is coffee, and the culture of cacao, sugarcane, and cotton is of some importance. Cabinet and dye woods are cut for export. There are only a few manufactures, and mining is almost wholly undeveloped. In the year ended September 30, 1909, dutiable imports were valued at \$5,880,676, against \$4,701,161 in 1908. Dutiable exports in the fiscal year 1909 are reported at \$3,479,848, but total exports for that year

are unofficially calculated at \$11,008,483, against \$17,399,200 in 1908. For the calendar year 1910 dutiable imports were unofficially reported at \$7,681,746 and total exports at \$15,475,331. The most important exports are coffee, cacao, and logwood. The United States furnishes most of the imports, and France receives the greater part of the exports.

COMMUNICATIONS. There are about 64 miles of railway. In August, 1910, the government entered into a contract for the construction of a railway system of 321 miles, and work thereon was begun in 1911. It included a line from Gonaïves to Port-au-Prince, extending across the island from north to south, and other lines with numerous branches, all of narrow-gauge construction. Telegraph line, 124 miles; post offices, 31.

FINANCE. Exact amounts of revenue and expenditure in recent years are not available. The budget for the fiscal year 1910 placed the revenue at \$3,329,010 and 8,300,581 gourdes, and the expenditure at \$3,329,010 and 8,246,842 gourdes. Supplemental credits increased the estimated expenditure to \$4,234,642 and 11,368,091 gourdes. For the fiscal year 1911, the budget placed the revenue at \$3,297,059 and 7,806,092 gourdes, and the expenditure at \$3,279,059 and 7,858,560 gourdes. The paper gourde fluctuates but may be taken as averaging about 20 cents in value. The principal source of revenue is import and export duties, and the largest item of expenditure is service of the debt. On March 31, 1911, the debt, including arrears, was \$26,349,510 and 10,384,300 gourdes.

ARMY. There is a standing army recruited by both conscription and voluntary enlistment, the actual strength of which varies, as does the formal organization. Theoretically recruits obtained by conscription serve for seven years and the volunteers for four years. The strength of the army is variously estimated at from 7000 to 14,000 men.

GOVERNMENT. The constitution provides for the election of a president by the National Assembly for seven years, but the chronic spirit of revolution is likely to cut short his term. The National Assembly consists of two houses, the Senate (39 members elected indirectly) and the Chamber of Representatives (96 elected by popular vote). On December 17, 1908, Gen. Antoine Simon was elected president, after the deposition of Gen. Alexis Nord (popularly known as Nord Alexis). A revolution in 1911 resulted in the deposition of Simon, and on August 14 Gen. Cincinnatus Leconte was elected president as from May 15, for seven years.

HISTORY. Difficulties with Santo Domingo led to strained relations between the two countries in January, but under American influence the governments agreed to submit their differences to arbitration. The United States, Great Britain, France, Germany, and Italy sent a joint note to Haiti on July 5, requiring the settlement of the claims of their citizens within three months or the submitting of them to arbitration. A revolution broke out in July. It was said to be due to the dictatorial methods of General Simon, whose policy resembled that of his predecessor, Alexis Nord. In July it was announced that General Leconte, with a revolutionary force, was in control of Fort Liberté, Gonaïves, and Sainte Marie, and the president was confined at Port-au-Prince. General Simon

finally found further resistance useless and took ship for Kingston, Jamaica, under the protection of foreign flags. The revolutionists entered the capital and General Leconte was chosen president on August 14.

HALLGARTEN PRIZE. See PAINTING.

HALLOWELL, SUSAN MARIA. An American botanist, died December 16, 1911. She was born in Bangor, Me., in 1835, and from 1853 to 1875 she was instructor in the high schools of Portland and Bangor. She received the degree of M. A. from Colby College in 1875 and soon afterwards was appointed instructor in botany at Wellesley College. After three years she was made professor of botany at that institution, a position which she held until 1902, when she retired and was made professor emeritus. She was a fellow of the American Association for the Advancement of Science and was a member of the Boston Society of Natural History.

HAMLIN, CHARLES. An American lawyer and soldier, died May 15, 1911. He was born at Hampden, Me., in 1837, son of Hannibal Hamlin, Vice-President of the United States under Abraham Lincoln. He graduated from Bowdoin College in 1857. In 1868 he was appointed major of the First Maine Artillery and after various promotions was appointed brigadier-general of volunteers in 1865 for faithful and meritorious service during the war. He took part in many important battles and was mustered out of service on September 14, 1865. He practiced law at Bangor, Me., and was at various times city solicitor, United States commissioner, reporter of decisions for the Supreme Judicial Court. He was also lecturer in the College of Law at the University of Maine. In 1883-85 he was a member of the State House of Representatives, of which he was speaker in 1885. He was connected with several important financial institutions. He was the author of *Insolvent Laws of Maine* and other books relating to legal subjects and was one of the editors of *Maine at Gettysburg*. He also wrote *Great American Lawyers*.

HAMBURG. See GERMANY.

HAMILTON COLLEGE. An institution of higher learning at Clinton, N. Y., founded in 1812. The students in 1910-11 numbered 190. There were 20 members of the faculty, of whom Professors Chase, Hastings, and MacHarg were additions. The productive funds of the college amount to about \$900,000 and the income to about \$50,000. The library contains about 51,000 volumes. The president is M. W. Stryker, D.D., LL.D.

HAMPTON NORMAL AND AGRICULTURAL INSTITUTE. An institution for the education of negroes, founded in 1868, at Hampton, Va. The institution in 1878 opened its doors to Indian pupils. The total number of students enrolled in the various departments of the institute in 1911-12 was 1399. The faculty, instructors and officers numbered 197. The amount of productive funds was \$2,402,011. The library contains about 30,000 volumes. The president is Rev. H. B. Frissell, D. D.

HANKOW. See CHINA.

HARLAN, JOHN MARSHALL. An associate justice of the Supreme Court of the United States, died October 14, 1911. He was born in Boyle county, Ky., in 1833, and graduated from Centre College in 1859. He studied law

at Transylvania University, and after being admitted to the bar practiced law at Frankfort, Ky. In 1858 he was elected county judge. The following year he was candidate for Congress on the Whig ticket. The returns showed that he was defeated by 67 votes out of 16,000 votes cast. Although he claimed that it could be proved that 500 illegal voters had been brought in to defeat him he did not make a contest because he declared that there was no organized party in Congress with whose principles he was in full accord. On the outbreak of the Civil War he organized the Tenth Kentucky Infantry to serve on the Northern side in that conflict. He was made colonel of the regiment and served under Gen. George H. Thomas until 1863, when he resigned because of the death of his father. At that time his nomination for brigadier-general was before Congress. From 1863 to 1867 he was attorney-general of Kentucky. In the following year he returned to practice, forming a partnership with William F. Bullock. He was twice the Republican candidate for governor of the State. At the Republican convention in 1876 he served as chairman of the Kentucky delegation. It was through his influence that the name of Bristow was withdrawn from the nominees of that convention, and the Kentucky delegation declared for Hayes, which brought about the defeat of James G. Blaine. When Mr. Hayes became President, he selected Harlan for attorney-general, but for political reasons he was obliged to abandon this and instead a diplomatic post was offered. This was refused and Harlan was made a member of the Louisiana Commission, the decision of which in the investigation of the election of Hayes became known as the "Louisiana Fraud." While the committee was still in session, Harlan was made an associate justice of the Supreme Court on November 29, 1877. Only three members of the Supreme Court bench have served longer terms, Chief Justice John Marshall and Justices Stephen J. Field and Joseph Story. Justice Harlan was noted both on the bench and off for independence, and he never hesitated to declare his convictions, whether they were in agreement with popular sentiment or not. He was among the candidates mentioned for the presidential nomination in 1904, for although he had begun his political life as a Republican his friends believed that in later years he was an independent Democrat. Justice Harlan wrote the opinion in the famous Northern Securities case. He believed that the government should supervise the trusts, and favored an income tax. In the Tobacco and Standard Oil cases decided in 1911, he bitterly opposed the decision by his colleagues. He characterized as "judicial legislation" the reading into the law the words "undue" and "unreasonable" as applied to restraint of interstate commerce. (See TRUSTS and STANDARD OIL.) Justice Harlan was a commanding figure physically. He was over six feet in height and often declared that he had never had a day's illness. For fifteen years he taught constitutional law at the George Washington University. He was popular as a public speaker and as an expounder of the Constitution held a reputation in the law school and on the bench. He was a devoted member of the Presbyterian Church and took a keen interest in foreign missions. At one time it was said that he considered seriously resigning from the Su-

preme bench and devoting the rest of his life to advancing the interests of the Presbyterian Church, especially in the foreign mission field.

At the time of the death of Chief Justice Fuller, Justice Harlan was considered most likely to succeed him. President Taft, however, considered it unwise, because a large amount of important administrative work falls to the chief justice, and Justice Harlan was, he considered, unequal to the task because of his age and infirmity. Justice Harlan was the oldest living member of the court, and had he lived a month longer he would have served 34 years. In addition to his judicial duties he served as one of the American arbitrators on the Bering Sea Tribunal, which met in Paris in 1893.

HARPSTER, JOHN HENRY. An American Lutheran clergyman and missionary, died February 1, 1911. He was born in Centre Hall, Pa., in 1843. Before his education could be completed the Civil War broke out and he enlisted for service. He became captain and staff officer in the second corps and was twice dangerously wounded in battle. After the war he studied at Selinsgrove and Gettysburg, Pa. In 1871 he was ordained to the Lutheran ministry and from 1872 to 1876 served as missionary at Guntur, India. Returning to the United States on account of ill health he resided for some time in California. He was pastor for several years in churches in Kansas; from 1882 to 1884 at Trenton, N. J., and from 1884 to 1893 at Canton, Ohio. In the latter year he reentered the foreign mission work in India and in 1902 was appointed director of the Mission of the General Council in India.

HARRIGAN, EDWARD. An American actor and playwright, died June 6, 1911. He was born in New York City in 1845. His boyhood was spent in New York and San Francisco, where he worked in several shipyards. In the latter city he first appeared on the stage as assistant in a variety performance. He made an immediate success, and in 1870 appeared in New York and in the following year in Chicago. Returning to New York he played for several years in many pieces, with many well-known actors. His first written play was *The Major*. This was a success and was followed in 1877 by *Old Lavendar*, which was perhaps the most meritorious of his plays. The best known of his plays was the famous Mulligan Guards series, the first of which, *The Mulligan Guards' Ball*, was produced in 1879. In these plays he appeared with Anthony Hart and the two became famous throughout the country. In 1881 they opened the New Théâtre Comique, where a number of plays were produced. This theatre was destroyed by fire in 1884. In the following year Mr. Harrigan leased the Park Theatre and in the same year dissolved partnership with Hart, whose health was failing. Harrigan's ambition was to found a theatre of his own, and he built the house in Thirty-fifth Street just east of Broadway, now known as the Garrick. This was opened in 1900 and many successful plays were produced here. For many years before his death Mr. Harrigan appeared only occasionally in revivals of his old pieces. He originated a new type of play in his rollicking Irish farces. His characters were taken from the streets and they spoke and acted a humor that appealed to the playgoers of that generation.

HARRISON, CARTER H. An American public official, elected mayor of Chicago in April, 1911. He was born in Chicago in 1860. After preparatory education in the public schools of that city and a German gymnasium, he graduated from St. Ignatius College in 1881. He studied law and practiced in Chicago from 1883 to 1889. From 1891 he engaged in the real estate business with his brother, William Preston Harrison, and the two brothers became editors and publishers of the *Times*, which was sold in 1894. He had early in his career taken an active part in politics and in 1897 was a candidate for mayor of Chicago, defeating the Republican candidate. He was successful in three subsequent campaigns and was mayor of the city continuously until 1905, when he was defeated by the Republican candidate, E. F. Dunne. His father, Carter H. Harrison, was mayor of Chicago for five terms. For details of the contest, see ILLINOIS.

HARRISON, Mrs. BURTON. See LITERATURE, ENGLISH AND AMERICAN, *General Biography*.

HARRISON, FREDERIC. See LITERATURE, ENGLISH AND AMERICAN, *Literary Biography*.

HARRISON, HENRY S. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

HARRISON, JAMES ALBERT. An American philologist and educator, died February, 1911. He was born at Pass Christian, Miss., in 1848. He graduated from the University of Pennsylvania in 1868 and afterwards studied in Germany. He was professor of Latin and modern languages at Randolph Macon College from 1871 to 1876. From the latter year until 1895 he was professor of English and modern languages at Washington and Lee University. In 1895 he was called to the University of Virginia as professor of English and romance languages, afterwards taking the chair of Teutonic languages in the same university. He was also a lecturer on Anglo-Saxon poetry at Johns Hopkins University. His writings include *A Group of Poets and their Haunts* (1874); *Greek Vignettes* (1877); *Spain in Profile* (1879); *Story of Greece* (1885); *Autrefois*, a collection of Creole tales, and *Negro English*. He edited the works of several German and French writers and also edited the complete work of Poe (1902). He was one of the editors of the *Century Dictionary* and the *Standard Dictionary* and contributed frequently to the philological journals.

HART, A. B. See LITERATURE, ENGLISH AND AMERICAN, *Travel and Contemporary History*.

HART, Sir ROBERT. Former inspector-general of customs in China, died September 20, 1911. He was born at Milltown, Ireland, in 1835, and was educated at Queen's College, Taunton, Wesley College, Dublin, and Queen's College, Belfast. In 1854 he entered the English consular service in China and until 1858 occupied various positions in that service. In the latter year he became secretary to the Allied Commissioners of the Government of the City of Canton. In the same year he was granted special permission to resign this office and accept an appointment in the Chinese Imperial Maritime Customs. He was appointed deputy commissioner in Canton in 1859 and from 1861 to 1863 served as officiating inspector-general. He was appointed inspector-general of customs in 1863. In 1885 he was offered the post of Brit-

ish minister to China, but declined. Sir Robert Hart was the creator of the great organization known as the Imperial Maritime Customs of China. For years he was the most powerful single personage in the East. In spite of rebellions and wars the customs service in China persisted without break and its efficiency was attributed entirely to him. In 1893 the control of the postal service was handed over to him, and two years later his power had become so great that he was able to withstand the efforts of Li Hung Chang, who endeavored to place a German official in his stead. His hand was seen in every Chinese commercial treaty made during the years of his administration. During the Boxer troubles of 1901 he was for a long time believed to be dead, and in recognition of his services in that rebellion the Chinese government made him a viceroy. In 1905 by imperial decree two Chinese officials were placed in control of the customs of the country with supervision of Sir Robert's own staff. In 1907 he was given leave of absence and this was further extended in 1909 and he did not again return to China. Sir Robert's long stay in China made him perhaps more Chinese in habits of thought than English. He dressed in the Chinese native costume and spoke the language. Indispensable as were his services to China, he was hated if not feared by the native mandarins. He was never admitted to equality in their councils. He had, however, the support of the empress dowager and was thus enabled to disregard the enmity of the Chinese officials. Under his administration the foreign trade of China increased over four times in value from 1864 to 1899 and the home trade over six times, while the revenue increased three times. He maintained a fleet to protect commerce along the coast and managed a complete lighthouse service. He paid the state's general expenses and supplied the money for war indemnities. The negotiation of foreign loans was in his hands. He loved detail and was a master of it. He received many honors in China and also many decorations and honors in nearly every European country. He was knighted in 1893. He was the author of *These from the Land of Sinim* (1901).

HARTFORD (CONN.). See MUNICIPAL GOVERNMENT.

HARUNA. See BATTLESHIPS.

HARVARD UNIVERSITY. The number of students registered in the university in the collegiate year 1911-12 was 5045. These were divided as follows: Faculty of Arts and Sciences, 2262; Graduate School of Arts and Sciences, 454; Graduate School of Applied Science, 123; Graduate School of Business Administration, 79; Divinity School, 48; Law School, 808; Faculty of Medicine, 275; Dental School, 154; Extension Students, 11; Summer School of 1911, 1065. The faculty numbered 707, of whom 134 were professors, 4 associate professors, 83 assistant professors, 45 lecturers, 186 instructors, 33 Austin teaching fellows, 18 teaching fellows, and fellows for research, and 204 demonstrators and assistants. In the Graduate School of Arts and Sciences were 572 students from other American colleges and universities and foreign universities. The gifts and bequests received by the university during the year will be found noted in the article GIFTS AND REQUESTS, and notes relating to the development of the work of the university in general will be found dis-

cussed in the article UNIVERSITIES AND COLLEGES. In Radcliffe College, the woman's college affiliated with the university, there were in 1911-12 546 students. The president of the university is Abbott Lawrence Lowell.

HARVEY. See NAVAL PROGRESS, *Armor*.

HASKELL, ELLA (KNOWLES). An American lawyer and public official, died January 27, 1911. She was born in North Ridge, N. H., in 1865. She studied law and was admitted to the bar. Moving to Montana she became prominent in politics and was the Populist nominee for attorney-general in 1893, opposing Henry J. Haskell, Republican. Although she made a strong campaign and polled a large vote, she was defeated. Haskell afterwards appointed her one of his assistants and she later married him. In a few years she secured a divorce and removed to Butte, where she opened a law office which was very successful. She won many notable mining cases and became known as one of the foremost women lawyers of the United States. She was active in woman's club work and in the Daughters of the American Revolution. She was also a student of Oriental philosophies.

HASTINGS, THOMAS SAMUEL. An American theologian, died April 2, 1911. He was born in Utica, N. Y., in 1827, graduating from Hamilton College in 1848. Three years later he graduated from the Union Theological Seminary. In 1852 he was ordained to the Presbyterian ministry and for four years was pastor at Mendham, N. J. From 1856 to 1882 he was pastor of the West Church, New York City. He was professor of sacred rhetoric and pastoral theology at the Union Theological Seminary from 1882 to 1904, and from 1904 to the time of his death was professor emeritus and lecturer on pastoral theology. From 1887 to 1897 he was president of the faculty of the seminary. He received the degrees of D. D. from New York University, LL. D. from Princeton and L. H. D. from Hamilton College.

HAVANA. See CUBA.

HAWAII, or HAWAIIAN ISLANDS. A territorial possession of the United States, comprising a chain of islands in the Pacific Ocean, which form the extreme northern group of Polynesia. The capital is Honolulu.

AREA AND POPULATION. The area of the islands is 6449 square miles. The largest are: Hawaii, 4015 square miles; Maui, 728 square miles; Oahu, 600 square miles; Kauai, 544 square miles; and Molokai, 261 square miles. According to the Thirteenth Census made in 1910 the population of Hawaii was 191,909, divided by races as follows: Japanese, 79,674; Hawaiian, 38,547; Portuguese, 22,303; Chinese, 21,674; American, British, German, and others, 29,711.

AGRICULTURE. The chief industries of the islands are those connected with agriculture, especially the sugar industry and fruit raising industry. The sugar industry surpasses in importance all other industries combined. The crop for 1911 is estimated at 555,000 short tons, as compared with 518,127 tons in 1910 and 535,156 tons in 1909. The most notable growth in the industries has been in the raising of pineapples. In importance this now ranks second to sugar. It is estimated that in the calendar year 1911, 800,000 cases were packed as compared with 610,000 in 1910. Much additional land was planted during the year which will

greatly increase the output during the next few years. A new product of its industries is a preparation of the juice of pineapples put up in bottles. In 1910 about 40,000 cases of this juice were prepared and in 1911 the quantity was nearly doubled. The tobacco and cotton industries are being developed and bid fair in time to be of importance. One of the chief obstacles to the agricultural development of the islands has been the difficulty of obtaining satisfactory labor. Owing to restrictions placed upon Chinese and Japanese labor by the United States government, it has been impossible to obtain an adequate supply of laborers from China and Japan. These have been found the most satisfactory laborers to be employed in the cultivation of sugar. Efforts made to obtain laborers from other countries have not been entirely successful. During 1911 the board of immigration brought to the Territory a shipload of Spanish and Portuguese laborers numbering 1451. These were not altogether satisfactory in physical or mental qualifications. Since 1905, 8793 European immigrants have been introduced into the islands. Of these 3853 were Portuguese, 3150 Spanish, and 1790 Russians. During 1910-11 the Hawaiian Sugar Planters' Association brought in 4930 Filipinos. On May 30, 1911, the laborers on the sugar plantations numbered 45,619. Of these the Japanese numbered 28,263; the Portuguese, 4053; Filipinos, 3358; Chinese, 2880, and the others were Spanish, Russians, Koreans, and Americans.

COMMERCE. The exports and imports for the year ending June 30, 1911, exclusive of specie, aggregated \$69,451,163. Of this amount \$27,512,580 were imports and \$41,938,583 were exports. As will be seen from the table below, by far the larger quantity of imports and exports go to and are derived from the United States. The distribution of imports and exports in 1910-11 will be shown in this table. In recent years there has been a steady and rapid increase of imports from the continental United States. During the last seven years these imports have increased from \$11,703,519 to \$22,322,121 or practically doubled. Although sugar continues to form the bulk of the exports, amounting in 1911 to 982,609,452 pounds of raw sugar, valued at \$35,612,887, and 22,609,400 pounds of refined sugar, valued at \$1,091,918, exports of rice, fruit, and hides are of considerable importance. The fruit and nuts exported to the United States in 1911 were valued at \$2,173,619. Exports of coffee in 1911 were valued at \$436,745, compared with \$330,228 in 1910. Rice, of which a considerable quantity is raised in the Territory, is consumed almost entirely within its limits.

TRADE BY COUNTRIES, FISCAL YEARS

	Imports		Exports	
	1910	1911	1910	1911
Australia and Tasmania. . .	\$ 277,405	\$ 294,324	\$ 15,539	\$ 7,191
Other British				
Oceania	110,007	929	4,996	1,227
British				
India ..	519,429	552,596	.....	.....
Canada	18,675	32,829	15,136	29,171
Chile ...	569,139	532,376	.....	.....
France .	23,029	16,580	80	2,126
Germany	312,740	591,349	19,093	41,345
Hongkong	281,231	305,176	4,769	20,081
Japan ...	1,856,376	2,022,698	220,119	274,744
U. K.....	455,780	566,198	1,855	45,955

	Imports (cont.)		Exports (cont.)	
	1910	1911	1910	1911
Other foreign	182,573	275,444	21,676	308,802
Total foreign	4,606,334	5,190,449	302,763	780,642
United States ..	20,531,918	22,322,121	46,183,649	41,207,941
Grand total	25,138,247	27,512,580	46,486,412	41,938,583

SHIPPING. During the fiscal year 1911 the tonnage entered at the ports of the island amounted to 1,343,876, an increase of 35,075 over the tonnage entered in 1910. The tonnage cleared amounted to 1,347,371. There has been a great increase in tonnage from 1901, the first year of the territorial government, when it amounted to 952,504. The number of vessels entered, however, owing to the substitution of larger steamships for smaller sailing vessels, decreased from 705 in 1901 to 427 in 1911. The number of American vessels entering ports in 1911 was 313, and of all others, 114. Nearly 95 per cent. in value of the freight was carried in American bottoms.

TRANSPORTATION. There is great necessity in the islands for improvement in the transportation facilities. One of the chief needs is a suitable harbor for deep water vessels on each of the larger islands, and two on the largest island, one on each side to serve as terminals for railways. Work is progressing under federal government for meeting this need at the harbors of Honolulu, Hilo, and Kahului on the islands of Oahu, Hawaii, and Maui respectively. The construction of railways is progressing in the islands and one or two new lines are contemplated. Transportation between Hawaii and the mainland is carried on by the American-Hawaiian Steamship Company, the Matson Navigation Company, the Oceanic Steamship Company, the Union Steamship Company, and the Associated Oil Company. A few American sailing vessels continue to carry sugar around Cape Horn.

PUBLIC LANDS. Amendments to the organic act which brought about radical changes in the territorial homestead laws were made in 1910. Under these amendments a number of drawings for homesteads were held in 1911. This land amounted in area to 2817 acres, valued at \$22,278. A proposition which has long been discussed, took definite form during the year, for the creation of a national park to include the volcano Kilauea, and the country surrounding it. This is the largest active volcano in the world and one of the most constantly active. The surrounding country includes a number of picturesque pit craters, sulphur banks, and other objects of unusual interest.

During 1911 three forest reserves aggregating 85,062 acres were created, of which 77,370, or 91 per cent., is public land.

EDUCATION. The number of pupils in the public schools in the islands in 1911 was 20,597. Of these 11,397 were males and 9200 females. The teachers numbered 523, of whom 401 were female and 122 male. The schools numbered 155. In 1911 the compulsory school age was changed from 15 to 17 years, as a maximum, the minimum remaining at six years. The new law provided also for the first time for summer schools. The Japanese comprise the largest number of school children. The pupils of this race have

increased in the last eleven years from 1352 to 7607. Manual and industrial training is carried on to a greater or less extent in most of the public schools.

FINANCE. The bonded debt at the beginning of the fiscal year 1911 was \$4,079,000. This was decreased during the year by the payment of \$75,000 of the 1903 issue of 4 per cent. bonds, leaving a total bonded indebtedness of \$4,004,000 at the close of the fiscal year. The receipts of the fiscal year were \$3,482,560, while the disbursements were \$3,584,517. The disbursements exceeded the receipts by \$101,956. There were received from taxes \$2,667,175, from land revenues, \$238,407.

POLITICS AND GOVERNMENT

The legislature is composed of fifteen senators and thirty representatives. There are four senatorial districts in which 2, 3, 4, and 6 senators are elected respectively, and six representative districts in each of three of which four representatives are elected and in each of the other three of which six representatives are elected. The sixth biennial session of the legislature convened in February, 1911. This was the most important session of the legislature held in the history of the Territory. Many laws of unusual importance were passed relating chiefly to schools, public health, city and county government, taxation, public works, population, immigration, and labor. The total number of bills passed was 169. No elections were held in the Territory in 1911. The last regular biennial election at which the delegate to Congress, the representatives, and half the senators of the territorial legislature and the higher city and county officers were elected, was held in November, 1910.

Early in the fiscal year 1911 the Territory was made a military district under the department of California. During the year progress was made in the construction of fortifications on the leeward side of the island of Oahu for the protection of Honolulu and Pearl Harbor. These included two forts for large disappearing rifles, two for mortars, and one for small rifles. A military survey, largely of a topographical nature, of the island of Oahu is nearing completion. At Pearl Harbor the work under the Navy Department progressed during the year. This included extensive dredging and the construction of a large dry dock.

OFFICERS. Governor, W. F. Frear; Secretary, E. A. Mott-Smith; Attorney-General, A. Lindsay, Jr.; Treasurer, B. L. Conkling; Commissioner of Public Lands, C. S. Judd; Superintendent of Public Works, M. Campbell; Superintendent of Public Instruction, W. T. Pope, Auditor, J. H. Fisher. See **ANTHROPOLOGY**.

HAY. The hay crop in 1911 in many parts of the world, owing to unfavorable weather conditions, was short. Some European countries were compelled to meet their requirements by importation. Great Britain produced in 1911, 8,081,145 tons, and in 1910, 9,693,710 tons; Germany produced in 1911, 31,016,088 tons, and in 1910 45,633,450 tons; and Canada, 12,694,000 tons in 1911, and 15,497,000 in 1910. The hay crop of 1911 in the United States was exceptionally short, the average yield per acre being only 1.10 tons, the lowest since 1895. All kinds of hay, wild and cultivated, were low in yield and for this reason more than the usual amounts

of corn fodder and silage were made and the straw of other cereal crops was saved with much greater care than is customary. The total production for the year was 47,444,000 tons, as compared with 60,978,000 tons the year before. The area under hay in 1911 was 43,017,000 acres and in 1910 45,091,000 acres. The average farm value on December 1 rose from \$12.36 in 1910 to \$14.64 per ton in 1911. The total value of the crop of 1911 was \$694,570,000, a value exceeding that of the wheat crop for the year by more than \$150,000,000. The leading hay States and their yields in 1911 were as follows: New York, 4,858,000 tons; Pennsylvania, 3,212,000 tons; Michigan, 2,797,000 tons; Iowa, 2,592,000 tons; Ohio, 2,505,000 tons; and Wisconsin, 2,495,000 tons. In area under hay New York stood first with 4,763,000 acres, followed by Pennsylvania with 3,148,000 acres, Iowa, with 3,240,000 acres, Ohio with 2,556,000 acres, and Missouri with 2,430,000 acres. The highest average yields per acre were secured under irrigation, which is largely practiced in the West, in growing alfalfa. The annual production of alfalfa hay in the United States amounts to about twelve million tons.

HAYNE, JOSEPH ELIAS. An Afro-American clergyman, physician, and author, died January 14, 1911. He was born in 1849 in Charleston, S. C. He served throughout the Civil War as commissary sergeant in a regiment of volunteers on the Union side. After the close of the war he graduated from Atlanta University and later studied theology at Harvard University. He was the author of *The Negro in Sacred History*, *The Black Man in Natural History*, and other works.

HEALTH. See **HYGIENE**.

HEALTH PROVISIONS IN SCHOOLS. See **EDUCATION**.

HEAT. See **PHYSICS**.

HEATH RIVER. See **EXPLORATION**.

HEAT WAVES. See **PHYSICS**.

HEDGES, HENRY P. An American jurist, the oldest graduate of Yale College, died September 26, 1911. He was born in Wainwright, L. I., in 1817, and graduated from Yale College in 1838. It didn't become a university till 1887. He returned a year later to that institution for a post-graduate course. He was admitted to the bar and went to Ohio with the intention of settling there. He soon returned to Long Island, however, and opened an office in Sag Harbor and later in Bridgehampton where he practiced until he retired from active work in 1893. He took an active interest in politics and in 1856 was a delegate to the convention in which the Republican party was founded. During the Civil War he was district attorney of Suffolk county. He was appointed county judge and surrogate in 1870. He held this office for four years and was later reelected to the same office. He took a deep interest in the history of Long Island and in 1897, when he was eighty years old, he wrote a history of East Hampton. He had the distinction of having delivered an address at the celebration of the bicentennial of that town in 1849 and at the celebration of the 250th year of its existence in 1899.

HEDIN, SVEN. See **EXPLORATION**.

HEIGHT OF BUILDINGS, LIMITATION OF. See **MUNICIPAL GOVERNMENT**.

HELGOLAND. See **BATTLESHIPS**.

HENDERSON, ARCHIBALD. See **LITER**

ATURE, ENGLISH AND AMERICAN, *Literary Biography*.

HEPBURN, JAMES CURTIS. An American physician and missionary, died September 21, 1911. He was born in Milton, Pa., in 1816, and graduated from Princeton University in 1852. In 1840 he went to China as a medical missionary and was stationed in Singapore and Amoy. He returned to the United States in 1846 and resided in New York City until 1859. In the latter year he went to Japan, where he lived in Yokohama until 1892. He compiled the first English dictionary of the Japanese language, published in 1867, also an English-Japanese dictionary. He wrote a grammar of the Japanese language, also published in 1867, and began in 1872 a translation of the Bible into Japanese, which was finished in 1888. He published a Japanese dictionary of the Bible in 1891. Dr. Hepburn was the oldest living graduate of Princeton University. He was given the degree of LL.D. by Lafayette College in 1872 and by Princeton University in 1905.

HERBERT, VICTOR. See MUSIC.

HEREDITY. See BIOLOGY.

HERRICK, ROBERT. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

HESS, LUDWIG. See MUSIC.

HESSE. See GERMANY.

HEWLETT, MAURICE. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

HICHENS, ROBERT. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

HIGGINSON, THOMAS WENTWORTH. An American clergyman, soldier, and author, died May 9, 1911. He was born in Cambridge, Mass., in 1823, and graduated from Harvard College in 1841. During his college course he became associated with many of the most famous men in the literary history of New England, among them Thoreau and Storey, Longfellow, under whom he studied, Lowell, Holmes, and Whittier. Edward Everett Hale was two years his senior in the class of '39. Upon his graduation he entered the Harvard divinity school, from which he graduated in 1847. He shortly after became pastor of a church at Newburyport. He was an aggressive Abolitionist, and his sermons against slavery were not well received by his congregation, which was made up for the most part of slave-holding sea captains. He was obliged to leave his pastorate and in 1850 moved to Worcester, where with Theodore Parker he started a movement which they called the Free Church. He was in the same year an unsuccessful candidate of the Free Soil party for Congress. At the time of the anti-slavery troubles in Kansas he hastened there and served on the staff of James H. Lee in the Free Soil forces. He was indicted for murder in connection with an attempt to free a fugitive slave, but was discharged on account of a flaw in the indictment. On the outbreak of the Civil War he enlisted in the Fifty-first Massachusetts Infantry and was commissioned captain. He at first refused to have anything to do with the war unless the slaves were armed. In 1862 he was offered the command of a regiment of negroes, organized by the military governor of South Carolina. With this regiment he took and held Jacksonville, Fla., but was wounded at Wiltown Bluffs in 1863 and in October of the following year resigned because of disability. At the close of the war he took up writing as

a profession and until 1873 lived at Newport, R. I. In 1880-81 he was a member of the Massachusetts legislature. In 1878 he removed to Cambridge, where he remained the rest of his life. He married in 1879, Mary P. Thacher. With her husband she collaborated in 1894 in a book of poems called *Such as They Are*. Colonel Higginson was a prolific writer and, in addition to contributing steadily to two periodicals, the *Woman's Journal* of Boston, a publication devoted to woman suffrage, and *Harper's Bazaar*, he wrote many books, including histories, essays, novels, and reminiscences. He was assigned by the State legislature to write the *Naval and Military History of Massachusetts*, a task which occupied him for more than three years. Colonel Higginson up to the very end of his life took the keenest interest in public affairs. Through his views of modern life ran a vein of optimism and hope which distinguished him from several of his contemporaries in New England. His knowledge of the important literary personages of the early and middle part of the nineteenth century made his reminiscent writings of the greatest interest and value, especially as he himself was a notable figure among those of whom he wrote. Among his published works are *Malbone* (a romance, 1869); *Army Life in a Black Regiment* (1870); *Atlantic Essays* (1871); *Young Folks' History of the United States* (1875); *Short Studies of American Authors* (1879); *Life of Margaret Fuller Ossoli* (1884); *Larger History of the United States* (1885); *The Afternoon Landscape* (poems, 1889); *Concerning All of Us* (1892); *Massachusetts in the Army and Navy* (1861-5, 2 vols., 1895-6); *Cheerful Yesterdays* (1898); *Old Cambridge*, (1899); *Contemporaries* (1899); *Henry W. Longfellow* (1903); *John G. Whittier* (1903); *A Reader's History of American Literature* (1903); *Part of a Man's Life* (1905), and *Carlyle's Laugh, and Other Surprises* (1909).

HIGH PRESSURE SYSTEM. See FIRE PROTECTION.

HILLES, CHARLES DEWEY. An American public official appointed in March, 1911, secretary to the President to succeed Charles D. Norton, who resigned. He was born in Belmont county, O., in 1867, and received his education in the public schools there and at the academy of Oxford, Maryland. From 1892 to 1900 he was financial officer of the Boys' Industrial School of Ohio and from 1900 to 1902 was its superintendent. From 1902 to 1909 he was superintendent, having custody of the funds of the New York Juvenile Asylum, Dobbs Ferry, N. Y. During his administration of this office buildings were erected at a total cost of \$2,000,000 and disbursements were controlled to the amount of \$3,000,000. On April 20, 1909, he was appointed assistant secretary of the treasury. His active interest prior to this time had been in the education of delinquent children. He is a director of the National Conference of Charities and Corrections, the National Conference on Education of Backward, Truant and Delinquent Children, and is also a member of the executive committee of the Playground Association of America. He delivered a series of notable addresses before the National Conference of Charities and Corrections, in 1910.

HILLIS, N. D. See LITERATURE, ENGLISH AND AMERICAN, *Religion*.

HINSDALITE, See MINERALOGY.

HISTORICAL ASSOCIATION, AMERICAN.

A society organized in 1884 for the promotion of historical studies. Its membership is about 3000. Its principal office is fixed at Washington and it makes an annual report to the secretary of the Smithsonian Institution. It holds annual meetings in different cities in the United States. The meeting in 1911, which was the twenty-seventh, was held at Buffalo the last week in December. The meeting was held in connection with the meeting of the American Political Science Association (q. v.). At the opening of the session the two societies listened to the addresses of their respective presidents, William M. Sloane, for the Historical Association, speaking upon "The Substance and Vision of History." The president of the Political Science Association, Gov. Simeon E. Baldwin of Connecticut, chose for his subject "The Progressive Unfolding of the Powers of the United States." The second joint meeting of the two associations was held to discuss Latin-American and Anglo-American relations. Henry Gil, a young Argentinian scholar, delivered an address on "The Point of View of Latin-America." Other papers on historical subjects were read, including one by H. W. V. Temperley, of Peterhouse, Cambridge. In another session of the meeting the British imperial problems formed the general topic and these were discussed by two Canadian scholars, Prof. W. L. Grant and Prof. C. W. Colby. At the same time Prof. C. W. Alvord made a searching analysis of British political factions on the eve of the American Revolution. A session on international relations was also held. A committee of the association is engaged in preparing a bibliography of English history and progress on this was reported. A new enterprise was undertaken by the association in granting a board of editors and a subsidy to the *History Teachers' Magazine*, conducted by Albert E. McKinley. In addition to the meeting in Buffalo, meetings were held in Ithaca and Toronto. Theodore Roosevelt was chosen president of the association for 1912. The other officers were as follows: Secretary, W. G. Leland; treasurer, Clarence W. Bowen. The publications of the association include the *Annual Report*, the *American Historical Review*, and the *Handbook*. Under its auspices is being published a series of *Original Narratives of Early American History* and it is assisting in the publication of an annual bibliography, *Writings on American History*, and of the series, *Acts of the Privy Council of England, Colonial*.

HITCHCOCK, EDWARD. An American physician and educator, died February 16, 1911. He was born at Amherst, Mass., in 1828 and graduated from Amherst College in 1849. He studied medicine at Harvard, graduating in 1853. Until 1861 he taught chemistry and natural history in Williston Seminary. From 1861 to the time of his death he was professor of hygiene and physical education at Amherst College. In 1898-9 he was acting president and dean of the faculty. From 1879 he was a member of the Massachusetts State Board of Health, Lunacy and Charity. He was the first physician in the United States to be placed in charge of a college gymnasium. He was the author of *Anatomy, Physiology, and Anthropometry*.

HITCHCOCK, GILBERT MONELL. United States senator from Nebraska. He was born in Omaha, in 1859 and was educated in the

public schools of that city and at Baden-Baden, Germany. He studied law at the University of Michigan, graduating in 1881. In the same year he was admitted to the bar and engaged in practice in Omaha until 1886, when he established the *Omaha Evening World*. In 1889 he purchased the *Morning Herald* and consolidated it with the *World* as the *World-Herald*, becoming editor of the new paper. He was elected a member of the Fifty-eighth, Sixtieth, and Sixty-first Congresses. In November, 1910, he defeated Senator Burkett in the senatorial primaries and was accordingly elected to the Senate by the legislature in January. See NEBRASKA.

HIYEL, See BATTLESHIPS.

HOBOKEN. See NEW JERSEY.

HOCKEY. The annual championship series of the American Amateur Hockey League was won by the Crescent Athletic Club, which went through the league season without suffering defeat. The New York A. C. team, which won the championship in 1909 and 1910, finished second. The final standing of the clubs follows: Crescent A. C., won 6, lost 0; New York A. C., won 4, lost 2; Hockey Club of New York, won 2, lost 4; St. Nicholas Skating Club, won 0, lost 6.

The professional championship of Canada was won by Ottawa with 13 victories and 3 defeats. Ottawa also captured the series for the Stanley Cup. New Edinburgh was the victor in the series played by the Inter-Provincial Amateur Hockey Union of Canada. In an international tournament held in Chamounix, Switzerland, Canada carried off the laurels, with Germany second, France third, and Belgium fourth. England finished in last place. Cambridge won its annual match with Oxford by a score of 4 to 1.

The championship of the Intercollegiate League (U. S.) was won by Cornell, which finished the season without defeat. Harvard was second, winning 4 games and losing 1. Yale won 2, lost 3. Columbia won 2, lost 3. Dartmouth won 1, lost 4, and Princeton, champions of 1910, also won 1 and lost 4.

HODGES, CHARLES LIBBENS. An American soldier, died December 26, 1911. He was born in Providence, R. I., in 1847 and was educated in public and private schools. At the age of fourteen he enlisted as a private in the Sixty-fifth New York Volunteer Infantry and served throughout the Civil War as a private and non-commissioned officer, taking part in the siege of Yorktown, and the battles of Williamsburg, Seven Pines, Malvern Hill, Gettysburg, the Wilderness, and Cedar Creek. In 1865 he left the volunteer service and four years later enlisted in the regular army as a private. In 1875 he received his first commission, that of second lieutenant in the Twenty-fifth Infantry, a negro regiment. Five years later he was promoted to be first lieutenant and in 1891 was made captain. During this period he was on duty in the Department of the South. He took part in the war with Spain, serving in the second division of the Fifth army corps. He was appointed major of the Seventeenth Infantry in 1900. In 1901 he was transferred to the Twenty-third Infantry, and in 1903 was made lieutenant-colonel. He was promoted to be colonel of the Twenty-fourth Infantry in 1907 and four months later was made a brigadier-general. After serving as commander of the Department of the Lakes he was placed on the retired list with the rank of major-general in March, 1911.

HOFF, JACOBUS HENDRICUS VAN'T. A Dutch chemist, died in March, 1911. He was born in 1852 and studied at the universities of Delft, Leyden, Bonn, Paris, and Utrecht. In 1876 he became a teacher in the veterinary school in the 'last-named university. Two years later he was made a professor at the University of Amsterdam, and in 1896 was called to the University of Berlin. With the French chemist, Lebel, he was founder of the science of stereo-chemistry and was one of the most prominent investigators in the new physical chemistry. In 1901 he received the Nobel prize. Among his publications are the following: *La chimie dans l'espace* (1875), translated by Arnold Eiloart as *The Arrangement of Atoms in Space* (1898); *Vorlesungen über theoretische und physikalische Chemie* (1898-1900; Vol. I., 2d ed. 1901), translated by R. A. Lehfeld under the title *Lectures on Theoretical and Physical Chemistry* (1898-99); and *Acht Vorträge über physikalische Chemie gehalten auf Einladung der Universität Chicago* (1902).

HOG CHOLERA. See VETERINARY SCIENCE.

HOME RULE, IRISH. See GREAT BRITAIN, *History*.

HOMOGENIZED MILK. See DAIRYING.

HONDURAS, BRITISH. See BRITISH HONDURAS.

HONDURAS. A Central American republic. Capital, Tegucigalpa.

AREA, POPULATION, ETC. There is an unsettled boundary dispute with Guatemala. One estimate of the area is 44,274 square miles, and another 46,250. The census of December 31, 1910, showed a population of 553,446 (270,722 males and 282,724 females), as compared with 500,136 in 1905, 489,367 in 1901, and 307,289 in 1881. The bulk of the population is Indian. The larger towns, with approximate population, are: Tegucigalpa, 35,000; Juticalpa, 17,800; Nacaome, 12,040; La Esperanza, 11,500. For primary instruction, which is free, secular, and nominally compulsory, there are upwards of 850 schools, with about 30,000 pupils. Several secondary schools are maintained and, at the capital, an institution for higher and professional education.

INDUSTRIES AND COMMERCE. The people are engaged principally in agriculture and cattle raising. The number of cattle is doubtless over 500,000. The leading crops are bananas and corn; sugar cane and tobacco are raised, and there is exploitation of cabinet woods (especially mahogany) and rubber. The country is remarkably rich in metals, but they are not extensively worked, except at the Rosario mine (not far from Tegucigalpa), which is reported to have produced altogether over \$16,000,000 in gold and silver.

For fiscal years ended December 31 imports and exports have been valued as follows in pesos silver (gold premium in 1908 and 1909 about 150, in 1909 about 165): 1908, 7,075,085 and 4,585,157 respectively; 1909, 6,841,115 and 5,275,094; 1910, 7,548,541 and 6,429,700. The principal imports are cotton textiles and food-stuffs. Larger exports in the fiscal years 1909 and 1910: Bananas, 2,410,193 and 2,420,070 pesos; gold and silver, 1,513,571 and 1,945,332; rubber, 93,746 and 314,365; hides, 139,622 and 304,204; cocoanuts, 300,104 and 279,564; cattle, 126,263 and 279,125. In 1910, imports from and exports to the United States, 5,148,806 and 5,637,528

pesos respectively; Germany, 1,060,194 and 399,752.

COMMUNICATIONS. In 1910 there were in operation 171 kilometers (106 miles) of railway, of which the National Railway, from Puerto Cortés to Pimienta, comprised 90 kilometers (56 miles); the remainder was plantation railway into the banana lands. A large additional mileage is projected, and some construction work has been carried on. Steamers ply the Ulua River from its mouth 125 miles to Progreso. Telegraph lines at end of 1910, 3220 miles, with 226 offices; post offices, 264.

FINANCE. For the year ended July 31, 1910, the revenue was 4,149,078 pesos (or, after deducting cost of collection, net revenue 3,666,901 pesos); expenditure, 3,992,623 pesos. Three-fourths of the revenue is derived from liquor excise and customs; of the expenditure, 1,492,893 pesos were for war. The budget for 1910-11 balanced at 4,714,065 pesos. Debt, August 1, 1910: Internal, 4,053,370 pesos; foreign (of which much has been in dispute), £22,933,875, including capital and arrears of interest from 1872. For several years efforts have been made looking to a settlement of the foreign debt. In March, 1909, a proposition for settlement submitted by the council of foreign bondholders was approved by President Dávila, but it failed to secure the approval of the United States government. On January 10, 1911, a convention providing for the conversion of the debt was signed at Washington by the American secretary of state and a special Honduran envoy. Under this convention, which had not been ratified by the American Senate at the close of the year, it was expected that Honduras would contract a loan with Messrs. J. P. Morgan & Company of New York.

ARMY. A standing army of about 2000 officers and men is maintained and a militia or reserve, in which some 50,000 citizens are enrolled. Every citizen is liable for service in the regular army from his 21st to 35th year and in the reserve for five years longer.

GOVERNMENT. The executive power is vested in a president elected by direct vote for four years, and the legislative in a unicameral congress of 42 members. On April 18, 1907, Gen. Miguel R. Dávila assumed provisional charge of the presidency (succeeding Gen. Manuel Bonilla) and became president early in the following year. An insurrectionary movement, fomented by Bonilla in 1910, led to the resignation of Dávila, who on March 28, 1911, turned over the executive office to Francisco Bertrand as provisional president until the end of the year. Dávila seemed to be inspired by a decent patriotism and a real desire to avert further conflict. On November 3, 1911, General Bonilla was elected president.

HONGKONG. A British possession (crown colony), made up of an island off the southeast coast of China (about 30 square miles), a strip of territory on the mainland leased from China (376 square miles), and four square miles of the Kowloon Peninsula. Population (1910) of the colony, 435,986, of whom 414,931 were Chinese; of the leased territory, 100,000, all Chinese. Victoria, with 219,755 inhabitants, is the capital. Hongkong is the centre of a large transit trade, and a free port. The trade, chiefly with Great Britain, China, India, Australia, the United States, and Germany, is not officially reported. Tonnage registered (1909) 48,666; en-

tered, 11,184,701; cleared, 11,230,424. The revenue in 1910 amounted to 6,960,869 dollars Mexican, and the expenditure to 6,907,113. Public debt, January 1, 1911, £1,485,732. The Chinese section of the Kowloon-Canton Railway was completed October 4, 1911. The total length of line is 111 miles. Sir F. D. Lugard was the governor in 1911.

HOOKEER, FRANK ARTHUR. An American jurist, died July 10, 1911. He was born at Hartford, Conn., in 1844 and received an academic education. He graduated in law at the University of Michigan in 1865 and in the same year was admitted to the bar. He practiced for one year at Bryan, Ohio, and then removed to Charlotte, Mich. From 1872 to 1876 he was prosecuting attorney. In 1878 he was appointed judge of the fifth judicial circuit of Michigan and in 1893 was appointed justice of the Supreme Court of that State for the term expiring in 1914.

HOOKEER, Sir JOSEPH DALTON. An English botanist and traveler, died December 11, 1911. He was born in Suffolk in 1817, the son of Sir W. J. Hooker, who was regius professor of botany at Glasgow and subsequently director of Kew Gardens. The son was educated at Glasgow, taking the degree of M. D. at the university of that city in 1839. He soon afterwards gave up the pursuit of medicine for that of botany and began a series of travels which formed a conspicuous feature of his life. He joined the famous Antarctic expedition of Sir James Clark Ross, receiving commission as assistant surgeon of the *Erebus*, but acting in the capacity of botanist. For a few years he cruised about the southern seas, visiting Australia, New Zealand, and the Falkland Islands. He gathered together an enormous mass of botanical information and over 5000 specimens of plants which, with those discovered on the voyages of Captain Cook and others, he discussed in six large volumes under the titles of *Flora Antarctica*, *Flora Nova Zelandiae*, and *Flora Tasmaniae*, 1844-60. These works at once gave him an eminent position in science. In 1845 he received the appointment as botanist to the Geological Survey of Great Britain and did excellent work in fossil botany. Soon afterwards he undertook another long journey to the northern frontiers of India. This expedition, the expenses of which were defrayed by the British government, lasted over three years and included the botanical and geographical explorations of many Himalayan peaks and passes, which were probably trodden then for the first time by a European. He made large collections which, joined with those of his friend, Dr. Thomson of the Botanical Gardens, Calcutta, aggregated nearly 7000 specimens. A narrative of this expedition is contained in *Himalayan Journeys*, 1852-4. In 1855 he was appointed assistant director of Kew Gardens, of which his father had been appointed director in 1841, and ten years later he succeeded his father as director, a position which he held until 1885. In 1860 he undertook a journey in Palestine and eleven years later visited Morocco on a botanical expedition, in the course of which he explored a portion of the Great Atlas range of mountains. His next journey was to the United States, where, in 1877, in company with Professor Asa Gray he studied the botany of the Rocky Mountains and the general distribution of American plants. In 1868 he pre-

sided over the Norwich meeting of the British Association. The address which he delivered on that occasion attracted much attention as it supported the Darwinian theory, which in those days was not generally accepted. Hooker, indeed, had a considerable share in the development of the theory of evolution. In 1873 he was chosen president of the Royal Society of which he had become a Fellow in 1847. He was knighted commander of the Star of India in 1877. In 1907 on the occasion of his ninetieth birthday, he received the Order of Merit. In addition to the works mentioned above his most important writings are contained in *Flora of British India* (1874); *Students' Flora of the British Islands*, and the great work, *Genera Plantarum*, undertaken in conjunction with his friend, George Bentham. This began to appear in 1862. Sir Joseph Dalton was the most eminent of living botanists. He received many decorations in the form of medals from learned societies.

HOOKWORM DISEASE (Uncinariasis: Ankylostomiasis; Miner's Anæmia). An active campaign against this disease was carried on during 1911 in several of the Southern States, especially North Carolina. The Rockefeller Commission held a conference at Atlanta, Ga., in February, at which the field agents of the commission organized for active work. Investigations in Georgia showed that in 138 out of 145 counties of that State, hookworm infection existed. In North Carolina the report of the State board of health for the first three months of the year showed that 1153 of the 1500 physicians in that State made reports on hookworm disease, and 519 of these report that they have treated cases. Altogether, 19,933 cases of hookworm disease were reported. It is estimated that 25,000 cases have probably been under treatment. Of the 16,994 specimens sent to the State laboratory for examination, infection was found in 5178.

Many dispensaries were established for the especial purpose of treating hookworm anæmia. Mississippi was the first to start this work, in 1910, with a dispensary at Columbus, which was treating 300 cases a month during 1911. In Alabama, there were four dispensaries in Geneva county, 5 in Dale county, 3 in Coffee county, and 2 at Houston. That the people were fully alive to the seriousness of the situation was shown by the result following the distribution of a circular in one county, announcing that free clinics for hookworm patients would be held at stated intervals. Up to April 14, the total number of patients coming in for treatment in response to this notification was 1416, and on one day as many as 439 patients applied for treatment at one clinic. In Florida a handbook of information, prepared under the direction of the State board of health, was generally distributed. In this brochure a history of the work in the State is given, together with a description of the worm, its distribution, life cycle, the symptoms of uncinariasis, and the diagnosis and treatment.

Stiles and Gardner conducted experiments for the purpose of determining the length of time hookworm eggs may retain their vitality in the soil and under various conditions of drying and temperature. They found that the soil under and around the privy is not entirely free from infection with hookworm even five months after the privy was last used, although the infection was considerably reduced at the end of



SIR JOSEPH HOOKER
BOTANIST, DIED DECEMBER 11, 1911

four months. When the infected material has undergone decomposition under water, most of the hookworm eggs are dead in about ten weeks. They believed it would not be safe to use such material as a fertilizer in less than three months. It was shown that chloride of lime failed to kill hookworm eggs in 22 to 40 hours.

As the result of an extensive investigation covering several years, Gunn reports that hookworm disease is found in 50 to 80 per cent. of the miners working in certain mines in California, and that the infection is present in Nevada mines also. As early as 1902, Stiles, of the Public Health and Marine Hospital Service, who first described the disease in America, discovered that infection was present among the copper miners of Virginia, and the coal miners of the Cummock district, and in the region of the Haile gold mines. It is believed that the infection was introduced by imported European miners, this disease being widely prevalent in the mines of various European countries. Gunn says that up to six years ago miner's anemia was unheard of in California, except for a few imported cases. In 1905 he called attention to the fact that a large number of Porto Ricans were coming to California and that over 50 per cent. of them were hookworm "carriers." In the latter part of 1910, under the auspices of the California State board of health, he investigated the conditions existing in certain gold mines in California and found that the disease was endemic and the infection extensive, being as high as 75 per cent. in some of the mines. Two cases were found in San Francisco which had unquestionably been imported from the Hawaiian Islands, where the plantations have been badly infected by thousands of Porto Ricans, who have been employed there for years, and by the Chinese and Japanese. Through the recently established bureau of tropical medicine of the San Francisco board of health, Gunn has investigated the subject of the importation of hookworm disease, and in so far as the infection from the Hawaiian Islands is concerned, he finds that of a total of 355 examinations of individuals coming to California from various tropical regions, 171 came from Hawaii, and 15 per cent. of these were infected with the hookworm. Of 59 Porto Ricans examined, 24 were found to harbor the parasite. The results of this investigation correspond very closely with those he obtained six years ago, when an examination of over 100 Porto Ricans in San Francisco demonstrated infection in more than 50 per cent., and he regards the problem of hookworm prevention in California as a matter of considerable importance.

HOOSAC TUNNEL. See ELECTRIC RAILWAYS.

HOPS. The hop crop of the world in 1911 was very uneven and below the average in quantity. The German fields suffered considerable injury from attacks of the red spider and untoward weather conditions, and as a result they ranged from good to bad. In Prussia the hop crop has decreased in general since 1899 and the crop of 1911 was the smallest in quantity and the lowest in quality for the last twelve years. Most European countries produced smaller crops than in 1910, but in Russia the production for the two years was about the same. In the United States fair crops were secured in the Pacific Coast States, while in New York the crop was extensively injured by

blue mold and vermin, this injury in some places approaching 50 per cent. The world's production in 1911 was estimated at 132,000,000 pounds or 44,000,000 pounds less than the crop of 1910. The well-known Saaz hop regions produced 9,350,000 pounds, as compared with 18,700,000 pounds the year before. Austria-Hungary produced on 50,635 acres 19,800,000 pounds, against 31,680,000 pounds in 1910. The German Empire, which in 1910 produced 44,000,000 pounds, yielded in 1911 only 20,900,000 pounds. The French yield in 1911 was about 4,950,000 pounds, Holland and Belgium produced 6,050,000 pounds, and Russia 6,600,000 pounds. The English yield was 36,080,000 pounds, while England's consumption is about 66,000,000 pounds. The United States produced 44,000,000 pounds, the production by States given in bales being: California, 87,000; Oregon, 80,000; New York, 30,000, and Washington, 23,000 bales, or a total of 220,000 bales. The world's crop for the year was over 55,000,000 pounds short of the world's consumption, which is about 187,000,000 pounds. Quick sales were made immediately after harvest, so that at the close of the year few hops remained in original hands. The rise in prices raised the value of the crop in the United States 40 per cent. over the five-year average.

HORMONAL. A liquid extract obtained from the spleen of an animal killed at the height of digestion. It is prepared by killing the animal, usually a guinea-pig, at the time when its digestive process is at the highest point. The spleen is removed and an extract made under aseptic precautions. Hormonal is a yellowish liquid, which is often turbid, but the slight precipitate does not appear to affect its efficiency. It is claimed that the extract has the property of exciting the peristalsis of the intestine, and it is therefore recommended in the treatment of chronic constipation and as a means of relieving paresis of the intestine in peritonitis and after abdominal operations. A prophylactic injection at the time of operation on the abdomen will, it is believed, obviate post-operative intestinal paresis. The drug may be given by the mouth, by intramuscular or by intravenous injection, a special preparation being required for each of these methods.

HORSE BREEDING. See STOCK-RAISING.
HORTICULTURAL EXHIBITION, ROYAL INTERNATIONAL. See HORTICULTURE.

HORTICULTURE. Unseasonable weather conditions in Europe and America alike were responsible for a rather serious shortage in the commercial and local supplies of early fruits and garden crops. The winter stock of vegetables was short, and the prices, especially of potatoes, often prohibitive. Several municipalities in Germany and one or two in the United States bought potatoes and sold them at cost. Thanks to a late growing season with plenty of moisture, and probably in some cases to the fruiting of new plantings, good to excellent crops of late apples, pears, plums, peaches, and grapes, as well as citrus fruits, figs, and olives, were secured in both Europe and America. On account of crop shortages early in the season, followed by a later active demand for fresh products, the total pack of canned and dried fruits and vegetables was only sufficient to meet current needs and was subject to speculation with resulting high prices.

The United States produced nearly 30,000,000 barrels of apples, as compared with about 24,-

000,000 barrels in 1910, and Canada's yield was over 3,000,000 barrels, or an increase of 75 per cent. over 1910. Nova Scotia produced a banner crop of over 1,000,000 barrels. During the season ending October 31, California shipped a record-breaking citrus crop of 14,000,000 boxes, as compared with 10,000,000 boxes in 1910. Florida's citrus crop was about 4,000,000 boxes. Twelve thousand, five hundred and thirty-nine ears of fresh deciduous fruits and about 183,300 tons of cured fruits were shipped from California in 1911, as compared with 11,936 cars and 151,275 tons, the final figures for 1910. Shipments of fresh grapes and of cured prunes were notably heavy.

EXPORT TRADE. The value of all fruits exported from the United States in the fiscal year 1911 was \$23,893,663, as compared with \$18,885,654 in 1910 and with \$8,415,103 in 1902. The imports of fresh fruits have steadily increased from \$17,436,184 in the fiscal year 1902 to \$24,177,160 in 1910, and \$27,017,832 in 1911. Fourteen million, three hundred and seventy-five thousand and seventy-five dollars' worth of bananas alone were imported in 1911, as compared with \$11,642,693 worth in 1910. New Orleans imports as many bananas as any other two ports in the world. The United States imported \$14,497,435 worth of nuts in 1911, over half of which were almonds and walnuts.

China is now exporting walnuts; \$43,829 worth were exported to the United States in 1910 and larger shipments were made last year. These nuts are produced in Manchuria and northern China, and are so hardy that the United States Department of Agriculture is introducing them for trial in the Northern States. Hawaii's canned pineapple pack has increased from 2000 cases in 1901 to about 800,000 cases in 1911. Porto Rico exported \$1,654,958 worth of oranges, pineapples, and grapefruit in 1911. The great demand for cocoanut oil has led to the rapid development of cocoanut culture in the Philippines, which are now supplying about one-third of the world's consumption of copra, or dried cocoanut, from which the oil is produced. In 1899, at the commencement of the American occupation, the islands shipped copra to the value of \$656,870 to all countries, as compared with \$9,899,457 in 1911. The copra is largely shipped to France to be made into oil and other products, although exports to the United States have increased rapidly the past two or three years.

During the year a successful test shipment of oranges and lemons from New South Wales was received in British Columbia. A large shipment of fresh peaches from Wenatchee Valley, Washington, was successfully marketed in London twelve days after starting. Canadian fresh peaches have been shipped abroad for a number of years. The establishment of peasant ownership in Ireland has given a marked impetus to fruit-growing. Exports of apples from Ireland to England five years ago did not exceed \$150,000 annually. Last year they totaled \$650,000.

The interest in commercial fruit culture has extended over a wide territory in recent years. Turkestan, for example, exports about 300,000,000 kegs of apples, pears, plums, walnuts, etc., worth in Europe about \$37,000,000; and to encourage this industry express trains are being run a distance of over 3000 miles to Riga. The fruit-growers in Crimea export over \$10,000,000

worth of fruit to Russia and England, and are now organizing a cold-storage warehouse modeled on that of Château Renard in France (see HORTICULTURE, 1910). Measures are being taken to perfect the culture of export fruit in the Caucasus region of Russia.

The recent rapid extension of the olive industry in California was attributed partially to the law which no longer allows cheap cotton-seed oil to be labeled as olive oil and partially to the extension of the ripe pickle market. Recent heavy plantings have absorbed the supply of nursery stock. In order to stimulate the better culture of olives in France, the growers are to receive an annual bounty until the year 1921 of about \$1.25 per acre for properly cultivated trees over 15 years old.

The establishment of the date industry in Arizona and California now seems assured, since the difficulties in ripening the better varieties have recently been overcome by the Arizona Experiment Station. By using an oven with proper regulation of moisture and heat, Deglet Noor dates may be rapidly ripened. The planting of this variety in the Salton Basin, along the lower Colorado, and in southern Arizona up to the altitude of 1200 feet, is now definitely recommended.

FRUIT BY-PRODUCTS. The utilization of by-products is one of the most striking characteristics of modern industry. A recent example is found in Italy, where a means has been discovered to turn to account the hitherto worthless seeds of the grapes used in wine-making. Oil is now extracted from them on a commercial scale by a process of direct heating with tetrachloride of carbon. The latter is obtained in abundance in Italy in the preparation of electrolytic soda. Private concerns in Florida have undertaken to place on the market the juices of oranges and grapefruit, thereby opening a way for the utilization of windfalls and scarred fruit. Likewise, a high grade of pineapple syrup is now being made in Hawaii. The manufacture of banana food products has become an important industry in Jamaica. Banana meal and chips are already fairly well known in Europe, especially in Germany, as a nutritious breakfast food.

ROADSIDE FRUIT TREES. The value of roadside fruit trees as road taxpayers is indicated by the results in the province of Hanover, where along certain stretches of the roads the auction sales of fruit have amounted to \$595 per mile. This province has some 7000 miles of country highways bordered with fruit trees, the profit of which is appropriated toward the upkeep of the roads. The natives have a healthy respect for the law and do not touch the fruit.

COLD STORAGE OF TABLE GRAPES. The government investigators in the United States and in Australia successfully demonstrated the practicability of storing choice table grapes for several months without seriously impairing the color and freshness of the fruit. A large shipment of California grapes stored in New York City on November 8 was removed six weeks later with selling price enhanced 150 per cent. The most important results of this experiment are the full corroboration of the suitability of cleaned redwood sawdust as a filler for grape packing, the necessity for prompt and quick cooling, and the apparent superiority of the round drum as a fruit package over the ordinary boxes used in previous experiments.

INTRODUCTION OF HARDY FRUITS. F. N. Meyer, the well-known agricultural explorer, secured a number of hardy fruits in Central Asia during the year, which are to be tried out in the more rigorous sections of the United States. Among the large number of things which were secured in Russian Turkestan, Chinese Turkestan, and Siberia were a collection of table grapes, some of them possessing special shipping qualities; forms of the bush cherry, an exceptionally hardy fruit for testing on the Great Plains; varieties of peach, nectarines, and apricots, promising for trial along the northern border of the peach belt; seeds of hardy wild apple and apricots, growing at high altitudes; and large fruited varieties of oleaster, which are among the hardest of all fruit plants. The hardness of the large fruited Chinese jujube, previously introduced, was indicated as far north as the State of Washington. A wide area of adaptability seems open to this new dry-land crop, whose preserved fruits compare favorably with the true date in quality.

By crossing native varieties of fruits with hardy fruits from Asia, N. E. Hansen has succeeded in breeding a hardy race of plums for South Dakota, many of which bid fair to become standard market varieties.

PLANT BREEDING. G. W. Oliver of the United States Department of Agriculture recently announced an improved method for the rapid multiplication and testing of new or rare fruits and ornamental plants, which is known as the "seedling-inarch" method, and is so easily performed that it may be employed by the amateur and professional nurseryman alike. Oliver has employed it principally with tropical fruits, but has also found it adapted to roses, chestnuts, walnuts, hawthorns, oaks, and many other hard-wooded plants not readily propagated by older methods. The manipulation of the seedling-inarch and its modifications is fully described in Bulletin No. 202 of the Bureau of Plant Industry, entitled "The Seedling-Inarch and Nurse-Plant Methods of Propagation."

By using a series of "adjuvant" stocks, G. Coudere, a French investigator, has been able to flower and fruit grape-vine cuttings the first season. This is accomplished by grafting a stock having one internode and a good root system under each eye along the length of the cutting, which remains in a horizontal position. This investigator's vineyard experiments with "adjuvant" grafts, or the use of two stocks for one scion, have shown that the companion stocks have a much greater period of duration than either of the stocks used alone; thereby prolonging the life of the vineyard.

At the Canadian Experimental Farms, Ottawa, a comparative study of many different individual trees of the same varieties of apples has been conducted for over ten years. The results show clearly that our fruit trees should be grown from selected scions. In a group of seventeen Wealthy apple trees, for instance, one tree has yielded practically five times as much fruit as the poorest trees and nearly twice as many as the average yield of the whole group. Similar studies being made by the Bureau of Plant Industry in California citrus groves are showing a striking variation in the total yield and the commercial quality of the fruit borne by individual trees under comparative environmental conditions. Many fruit-growers were actively searching for the unprofitable trees.

NEW METHODS OF PRESERVING POLLEN IN A VIABLE CONDITION. While pollinating a number of different fruits, S. N. Green found that pollen inclosed in empty quinine capsules retains its vitality for a long time. The capsules may be mailed to distant points without trouble. Working along the same line, J. Simon, a German investigator, found that pollen grains may be preserved in a viable condition for several weeks by placing the pollen in small glass vessels with the mouth loosely plugged with cotton, and then inclosing these vessels in a larger vessel containing water-free calcium chloride. The calcium chloride, which is placed to a depth of a few centimeters and covered with a layer of cotton, absorbs the humidity from the air in the larger vessel.

SPRAYING. Widespread demonstration experiments in 1911 convinced many fruit-growers that spraying is a highly profitable practice, and that the combination of self-boiled lime-sulphur and lead arsenate is the standard remedy for the principal fungus diseases and insect pests of the apple and peach. Orchardists in New Zealand were importing American spraying machinery and lead arsenate.

The effectiveness of spraying should be increased in a large measure by using a nozzle such as that recently devised by Dr. G. E. Stone of the Massachusetts Experiment Station and which gave very satisfactory results in spraying large trees from a high-pressure machine. The spraying was just as thorough and the cost was about one-third of that in which Vermorel and other fine-mist nozzles were used.

IMPROVED METHOD OF BLEACHING NUTS. In the old process of bleaching with a chloride of lime solution, the kernels often become rancid or taste, at least, of the chemical used; hence California nut-growers are rapidly adopting a new process which consists in subjecting walnuts and the like to the action upon the shells of an electrolyzed solution of salt. One electrolyzer will produce in eight hours sufficient bleach for eight tons of walnuts. Aside from the preservative property of the salt, the process is cheaper than the old method.

PROCESSING PERSIMMONS. The experiments begun by the United States Department of Agriculture several years ago with a view to removing their astringency in advance of the softening of the fruit have shown definitely that the processing carried on by the Japanese in sake casks may be duplicated under more exact conditions by surrounding the fruit with an atmosphere of carbon dioxide gas. The perfection of a practical method of using this process under commercial conditions will lead to the production of non-astringent persimmons, which may be pared and eaten like an apple.

The Royal International Horticultural Exhibition to be held on the grounds of the Royal Hospital at Chelsea, England, will be opened by his majesty, King George, on May 22, 1912. The exhibition has been announced as the great horticultural event of the present generation. There will be 428 classes of entry, representing all phases of horticulture and including collective exhibits from several foreign countries, as well as from individual counties in Great Britain. An international conference of horticultural educators and investigators will be held during the period of the exhibition.

LITERATURE. Among the recent contributions to horticultural literature may be mentioned:

Leitfaden für gärtnerische Pflanzen-Züchtung, by M. Lobner (Jena, 1909), which treats of methods for breeding new ornamentals, fruits, and vegetables; *The Art of Grafting and Budding*, by C. Baltet (London, 1910, sixth ed.), is an English translation of the author's *L'Art de Greffer*; *The Fruit-Growers' Guidebook*, by E. H. Favor (St. Joseph, Mo., 1911), a popular manual of fruit-growing for the amateur and a reference work for the commercial orchardist; *Produce Markets and Marketing*, by W. T. Seibels (Chicago, 1911), deals with the principles of marketing fruit and produce; *Root and Stem Vegetables*, by A. Dean (London and Edinburgh, 1911), discusses the culture of root and blanched stem crops, including a chapter on growing mushrooms; *De l'Art des Jardins*, by M. Fouquier (Paris, 1911), comprises a pictorial-historical account of the evolution of garden art in France; *What England Can Teach Us about Gardening*, by W. Miller (Garden City, N. Y., 1911), this comparative study of the various types of ornamental gardening in England and America is offered as a contribution to the foundation of an American style of gardening; *Der Garten* by A. Grisebach (Leipzig, 1910), a descriptive and pictorial account of formal gardening in different ages in Europe, including an extensive bibliography; *Shade Trees in Towns and Cities*, by W. Solotaroff (New York and London, 1911), deals with the selection, planting, and care of shade trees—their municipal control and supervision; *Annual and Biennial Garden Plants*, by A. E. Speer (London, 1911), the plants are arranged alphabetically and briefly considered relative to their value, uses, and culture; *The Bulb Book*, by J. Weathers (London, 1911), is a descriptive, cultural treatise on bulbous and tuberous plants for the open air, stove, and greenhouse, including plants from all parts of the world having bulbs, corms, tubers, or rhizomes with the exception of orchids; *The Practical Flower Garden*, by Helena R. Ely (New York and London, 1911), treats of the culture and color arrangement of shrubs and flowers; and *The Book of the Flower Show*, by C. H. Curtis (London and New York, 1910), which is a reference work for those having the management of flower shows.

HORTON, MARCUS N. An American educator, died May 18, 1911. He was born in Oxford, N. Y., in 1820. He received his education at the Delaware New York Literary Institute and at Williams College, graduating from the latter institution in 1853. In 1855 he was associated as instructor in natural science with Dr. George Kerr. Soon after he became principal of the Walton, N. Y., Academy. In 1861 he again became associated with Dr. Kerr, first as professor of botany and physics in the New York State Agricultural College, and next as associate principal of the Jefferson County Institute. In 1864 he became principal of the Oneida, N. Y., Seminary. He studied law and in 1869 was admitted to the bar. He served as principal of various high schools in Pennsylvania. He was one of the oldest graduates of Williams College.

HOSPITALS. The Presbyterian Hospital of New York City received a bequest of \$100,000 from the estate of E. O. Kindberg, \$100,000 by the will of Miss Adèle Dortic, and \$10,000 by the will of Miss Frances S. Welles, the latter to be used to make more comfortable the nurses and patients in the general wards and to brighten their lives. Among other gifts may be

mentioned one of \$10,000 to the Montefiore Home, New York City, from Mrs. Adolf Schefel; the Geneva Hospital received \$2000 from the estate of Bernard Amend; the Methodist Episcopal Hospital of Brooklyn a \$5000 bequest from the late William Lawrence. By the will of the late George L. Fox of Brooklyn St. Catherine's Hospital received \$25,000, the Brooklyn Hospital \$20,000, Eastern District Hospital \$100,000, St. Mary's Hospital \$25,000, German Hospital \$25,000, St. John's Hospital \$10,000, and the New York Ophthalmic and Aural Institute \$10,000. St. Catherine's Hospital also received \$10,000 from the estate of Charles Engert and St. Mary's Hospital, the German Hospital Society, and St. Peter's Hospital each \$5000 from the same source. Mr. Abraham Abraham bequeathed \$50,000 to the Jewish Hospital of Brooklyn. The New York Post-Graduate Hospital was completed in October. The building is said to be the tallest hospital structure in the country. The main building is ten stories in height, with a solarium on the roof. On the ground floor are the dispensary rooms for the visiting staff, patients, trustees, etc.; on the second floor the medical and surgical amphitheatre, wards, examination rooms, X-ray laboratory, and minor operating room; the mezzanine floor is given over to diseases of the eye, ear, nose, and throat; the fourth floor is occupied by a children's ward, maternity ward, and museum; sleeping-rooms for nurses and servants are on the fifth floor; the sixth, seventh, and eighth floors are devoted to private patients; the ninth floor to private operating rooms and wards; the tenth floor to an isolation ward and the dining-rooms. The main building cost about \$650,000, and with the adjoining ambulance station, training school for nurses, and cost of ground, represents an investment of about \$1,000,000. The New York Hospital bought as a site for a new home the entire block bounded by Fifty-fourth and Fifty-fifth streets and Eleventh and Twelfth avenues, at a cost of about \$1,000,000. This site was selected because of the ample supply of light and fresh air, the DeWitt Clinton Park being directly to the south and the Hudson River to the west. It is stated that the proposed group of buildings will surpass any similar group in the city. The New York Hospital is the oldest in the city, having been chartered by the authority of King George III. in 1771. The Mount Sinai Hospital purchased property adjoining its present structure in East Ninety-ninth Street for the site of a pathological building, on the strength of a donation of \$200,000 by Adolph Lewisohn. The new Contagious Disease Hospital on Ellis Island, constructed at a cost of over \$75,000 by the United States government and designed for the exclusive use of immigrants suffering from contagious diseases, was opened January 22. There are 16 measles wards, with room for 480 patients; diphtheria and scarlet fever patients will be accommodated in detached pavilion wards. Sixty acres of ground were purchased by the Burke Foundation on Mamaroneck Avenue, White Plains, for \$180,000. Cottages to accommodate 300 convalescent patients will be built. A new hospital was opened at Rockaway Beach. It is a brick structure, costing \$100,000, raised by popular subscription. A new hospital was also opened at Coney Island; the institution accommodates 184 patients and is under the auspices of the Children's Aid Society of Brooklyn.

Mrs. Samuel W. Bowne gave \$50,000 for a tuberculosis hospital for the city of Poughkeepsie. A fund of \$31,771 to complete and furnish the Webber Hospital, Biddeford, Maine, was raised and the hospital was opened during the summer. The Bigelow Memorial Hospital, North Conway, N. H., was formally dedicated May 18. This hospital is situated midway between North Conway and Intervale; it is built on the cottage plan and has accommodation for twenty patients. St. Margaret's Hospital, Dorchester, Boston, was opened for public inspection May 5. The will of Mrs. Rosa A. Cole of Kingston left \$100,000 to the Jordan Hospital, Plymouth, Mass., and the will of Mrs. W. O. Moseley gave the sum of \$200,000 to the Anna Jacques Hospital, Newburyport, Mass. St. Vincent's Hospital of the same city received \$10,000 from the estate of Rev. Thomas Griffin. Twenty thousand dollars was left by John Ashton to the Massachusetts General Hospital in Boston; this institution also received \$25,000 by the will of Mrs. Sarah A. Matchette, who in addition left \$50,000 to the McLean Hospital for the Insane, Waverley. The Rotch Memorial Infants' Hospital, on the grounds of the Harvard Medical School, was completed. The building has a frontage of 120 feet and is three stories in height. The will of the late Ellis A. Yarnall gave \$200,000 to the Episcopal Hospital at Philadelphia. A new addition to the Methodist Episcopal Hospital of Philadelphia was dedicated on February 25; the building cost \$40,000, and will be used for kitchens, storage rooms, dining-rooms, and dormitories. By the will of Miss Ada George, the Nursery and Childs' Hospital and the Church Home and Infirmary, Baltimore, each received \$1000. The Presbyterian Hospital, New Orleans, was formally opened on February 4. The will of John W. Gates devised \$150,000 to the Mary Gates Memorial Hospital of Port Arthur, Tex. In Illinois, Elizabeth Shaw bequeathed \$30,000 to the Dixon Public Hospital; a hospital for the care of destitute and crippled children, costing \$50,000, was erected near Wheaton, and the new Sparks Hospital, Carlisle, was dedicated September 21. The new Schneck Memorial Hospital, costing \$25,000, was dedicated at Seymour, Ind. The new building of the German Hospital, Kansas City, constructed at a cost of \$150,000, was opened November 21. In California, through the generosity of the heirs of Calvin Page and D. O. Mills, St. Luke's Hospital, San Francisco, received an endowment of more than \$1,000,000; the new Children's Hospital, San Francisco, was opened October 20; the cornerstone of St. Luke's Hospital, San Francisco, to cost about \$400,000, was laid with impressive ceremonies October 18; plans were completed for the erection of the Psychopathic Hospital at Los Angeles, to cost \$100,000; and Mrs. Whitelaw Reid gave \$60,000 to the Red Cross Guild Hospital, San Mateo.

HOT SPRINGS. See GEOLOGY.

HOURS OF LABOR. See LABOR LEGISLATION.

HOUSE FLY. See INSECTS AND THE PROPAGATION OF DISEASE.

HOUSEHOLD ARTS EDUCATION. See EDUCATION.

HOUSE OF LORDS. See GREAT BRITAIN.

HOUSSAYE, HENRI, Count. A French historian and academician, died September 24, 1911. He was born in Paris in 1848, the son of Arsène Houssaye, the novelist. His earliest intention

was to become a painter, but he soon turned to literature, publishing a *History of Appelles* at the age of 19. His education was received at the Lycée Napoléon. In the Franco-German War, 1870-71, he served as a first lieutenant. After a long sojourn in Greece he published a work on *Alcibiades in the Athenian Republic*, which won for him the Academy's prize of 20,000 francs. After occupying himself with subjects relating to ancient Greece for many years, he turned his attention to France and Gaul, and in 1876 published a clever work describing the first siege of Paris, B. C. 52. This was a remarkable achievement, both from an archaeological and a military point of view. He then became interested in the history of Napoleon and the post-revolutionary era of France. This resulted in a brilliant work on *The Decline and Fall of Napoleon I.*, insuring his election to the Academy, which followed on the death of Leconte de Lisle in 1894. He was for a time editor of the *Journal des Débats*, and the *Revue des Deux Mondes*. In 1904 he published a work entitled *Napoléon, homme de guerre*. Among his other published works are *L'art français depuis dix ans*; *Les hommes et les idées*; *La réforme de la loi militaire*, and *1815, la terreur blanche*.

HOWARD UNIVERSITY. An institution for the higher education of negroes, founded in Washington, D. C., in 1867, under the Freedmen's Bureau. The university is under the control of the Interior Department of the United States government. The students enrolled in all departments of the university in 1910-11 numbered 1182. The faculty numbered 114. Two professors, one from the Iowa State University and one from Lafayette College, were called to the new school of applied science, which was opened in 1910. The chair left vacant in the school of theology by the Rev. Dr. John L. Ewell was filled by the Rev. Dr. Pezavia O'Connell. A new science building was erected at a cost of \$100,000, and more than six hundred students are taking advantage of the courses in physics, chemistry, and biology. A new steam heating, electric lighting, and power plant was finished in the fall of 1911. This also cost over \$100,000. The opening of the year 1911-12 saw a notable increase in the number of students registered. The entering freshman class was more than twice as large as the entire enrollment in the college department five years ago.

HOWELL, EDWIN EUGENE. An American geologist, died April 16, 1911. He was born in Genesee county, N. Y., in 1845, and was educated in the public schools and in special study at the University of Rochester. In 1872-3 he acted as geologist in the United States geographical surveys west of the one hundredth meridian. He was also engaged in the Powell survey of the Rocky Mountain region in 1874. He made in the following year a relief map of the Grand Cañon of the Colorado. Five years earlier he had modeled a relief map of the island of Santo Domingo, which was probably the first relief map made in the United States. After resigning from the geological survey he was for a time at the Rochester Museum. A few years later he removed to Washington, where he established the "Microcosm," an institution devoted chiefly to the manufacture of geologic materials, especially the modeling of relief maps. His most notable work consisted of the plastic representation of the physiography, topography, and geologic structure which are to be found

on the walls of museums and schoolrooms throughout the United States. He was one of the founders of the Geological Society of America, and was connected with a number of other scientific organizations, national and local. Among his writings are: *A Report on the Geology of Portions of Utah, Nevada, Arizona, and New Mexico in Explorations and Surveys west of the One Hundredth Meridian* (1875); *Rocks of the New York System* (1878), and numerous articles on meteorites in journals and scientific proceedings.

HUGHES, CHARLES JAMES, JR. United States senator from Colorado, died January 11, 1911. He was born in Kingston, Mo., in 1853, and graduated from Richmond college in 1871. He studied law at the University of Missouri, and in 1879 started in the practice of law at Denver. He took an active interest in politics, and in 1888 and 1904 was Democratic candidate for presidential elector. He was presidential elector in 1900. From 1892 he was professor of mining law in the Denver law school, and from 1903 to 1906 lectured on the same subject at the Harvard law school. He was elected United States senator in 1909 for the term expiring in 1915. Senator Hughes was one of the best known lawyers in the West, and during his term in the Senate participated in many important discussions and became, in spite of his short period of service, an influential member of that body.

HUNGARY. See AUSTRIA-HUNGARY.

HUNT, HENRY T. See OHIO.

HUNTSVILLE. See ALABAMA.

HUON ISLANDS, THE. A dependency of New Caledonia (q. v.).

HYDRO-AEROPLANE. See NAVAL PROGRESS, *Naval Aeronautics*.

HYDROPLANE. See AERONAUTICS.

HYGIENE. Mr. Leonard Hill made an interesting series of experiments at the London Hospital, which have led to a somewhat novel doctrine of ventilation. All the current teaching of the hygiene of ventilation runs on the chemical purity of the air, but according to Hill the essential thing in ventilation is heat, not chemical purity. It does not matter if there is 1 per cent. more carbon dioxide and 1 per cent. less of oxygen. In the worst ventilated rooms there is not 1 per cent. less than the normal amount of oxygen. The only effect of an excess of carbon dioxide is to increase the depth of respiration. To produce any toxic effect a much higher amount is necessary. As to organic impurities derived from respiration, there is no physiological evidence of their toxicity or that they are of any importance except as an indicator of the number of bacteria in the air. Chemical purity of the air is desirable in order to diminish the chance of infection, but in halls and theatres there is very little chance of preventing infection from persons who sneeze or cough out thousands of bacteria. To prove these views Hill made the following experiments. Into a small chamber which holds about three cubic meters, he put eight students and sealed them up. They got into the chamber laughing and joking. At the end of half an hour, the wet-bulb temperature had risen to 85 F. They had ceased to laugh and joke and their faces became congested. The carbon dioxide had gone up 5 per cent. and the oxygen down to a corresponding extent. Hill then put on three electric fans and merely whirled the air about just as

it was. The effect was like magic. The students at once felt perfectly comfortable, but when the fans were stopped they felt as bad as ever. In another experiment, a man in the chamber breathed through a tin of soda lime, so that no carbon dioxide was admitted. When the wet-bulb temperature rose to 85° sweating and discomfort came on just as in the first experiment, and when the fans were turned on, he got the same relief. Then a bag containing carbon dioxide was connected with the chamber, and enough of the gas was admitted to raise the percentage of carbon dioxide to 2 per cent. The man in the chamber felt no ill effects whatever, but he was observed to breathe more rapidly. These experiments, Hill asserts, show that all the discomfort from breathing air in a confined space is due to heat and moisture, not to carbon dioxide. Even after forty-five minutes in the chamber, there were no after effects, such as headache. In a crowded room the air is at the body temperature and there is no circulation; therefore it becomes saturated with moisture and there is no way of keeping the body temperature down. We cannot radiate heat because the air about us is of the same temperature, and we cannot lose heat by evaporation, because the air is stagnant. The open-air treatment that is so generally advocated, Hill declares, is not so much a matter of fresh air, as it is the constant cooling of the body by the circulation of air, which makes us eat more and be more active. This leads to a general strengthening of the body, because the blood is not only circulated by the heart, but by every muscle in the body. There cannot be efficient circulation without constant movement and activity; if there is constant cooling by ventilation, an individual is kept more active and the general health is improved.

Frequently our confidence in the efficacy of milk inspection is shaken. In the spring of 1911, a remarkable epidemic of virulent tonsillitis occurred in Boston and its suburbs, affecting over a thousand persons and causing forty-eight deaths. Unimpeachable evidence showed that the epidemic was spread in milk from a particular dairy farm, the infection of the milk apparently originating in an epidemic of the same character which prevailed in the neighborhood of the farm during some six weeks preceding the Boston outbreak. The milk supply of Boston has been for some years thoroughly inspected and excellent regulations were in force to avoid contagion. Searching inquiry failed to reveal any instance of neglect or lack of precaution; in short, the conditions surrounding the implicated milk supply were ideal. Here infection leaped the barriers of all known precautions. Boston has had other similar epidemics. In 1907 there were 1700 cases of scarlet fever traced to one source of milk supply, and seventy-two cases of diphtheria to another. In 1908 there was a milk-borne outbreak of typhoid fever totaling 400 cases. In 1910 there was a scarlet fever epidemic of 842 cases. Including the present outbreak, there have been over 300 cases of epidemic disease traced to milk in the immediate neighborhood of Boston during a period of five years.

Epidemics of "septic sore throat" in England have been attributed to contaminated milk, but in the United States such outbreaks have occurred infrequently or else have been unrecognized. A recent epidemic of diphtheria among

the students and faculty of the University of Minnesota, however, was traced to the milk supply, in this case coming from one of the cleanest and best regulated dairies in the State. It is suggested that a carrier among the dairy workers was responsible for the infection. The difficulty of guarding milk against contamination of this sort brings the question of Pasteurization seriously to the front.

HYGIENE EXHIBITION, INTERNATIONAL. See FOOD AND NUTRITION.

ICELAND. A Danish crown colony, covering 40,456 sq. miles, with a population (February 1, 1911) of 85,089. Imports (1908), 16,375,000 kroner; exports, 10,704,000. The minister (1911, Kristjan Jonsson) resides at Reikjavik, and is the responsible executive.

IDAHO. POPULATION. The Thirteenth Census, taken in 1910, showed a population of 325,594, as compared with 161,772 in 1900, an increase in the decade of 101.3 per cent. This was the largest increase shown in any of the States except Washington and Oklahoma. The principal cities of the State, with their populations in 1910 and 1900 are as follows—the figures in parenthesis are for 1900: Boise, 17,558 (5957); Pocatello, 9110 (4046); Cœur d'Alene, 7291 (508); Lewiston, 6043 (2425); Twin Falls, 5258.

AGRICULTURE. The Thirteenth Census included statistics of agriculture in the State, dated April 15, 1910. At that date the total number of farms in the State was 30,807, as compared with 17,471 in 1900. The land in farms was 5,183,604 acres, as compared with 3,204,903 acres in 1900. The improved land in farms was 2,778,740 acres, as compared with 1,413,118 acres in 1900. The average acres per farm was 171.5. The value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees was \$305,317,185, as compared with a value of \$67,271,202 in 1900. The average value of all property per farm was \$9911, as compared with \$3850 in 1900. The average value of land per acre was \$41.63, as compared with a value of \$11.07 in 1900. Of the 30,807 farms in 1910, 27,619 were operated by owners (of which 17,983 were mortgage-free and 9010 were under mortgage) and managers, and 3188 by tenants. Of those operating and managing farms, 24,694 were native whites, 5708 foreign born whites, and 405 negroes or other non-whites. The total value of the various kinds of domestic animals and poultry and bees in 1910 was \$49,775,309, as compared with a value in 1900 of \$21,657,974. The cattle numbered 453,807, valued at \$11,330,639; horses and colts, 197,772, valued at \$19,832,423; mules, 4036, valued at \$481,301; swine, 178,346, valued at \$1,398,727; sheep and lambs, 3,010,478, valued at \$15,897,192. The poultry of all kinds numbered 1,053,876, valued at \$598,190. The acreage, production, and value of the principal crops of the State will be found in the table below:

	Acreage	Prod., bu.	Value
Corn .....1911	11,000	330,000	\$280,000
1910	10,000	320,000	227,000
Wheat .....1911	517,000	15,860,000	10,468,000
1910	472,000	10,658,000	7,674,000
Oats .....1911	331,000	14,564,000	5,826,000
1910	319,000	12,282,000	5,158,000
Rye .....1911	3,000	68,000	46,000
1910	3,000	60,000	40,000

(Cont.)	Acreage	Prod. bu.	Value
Potatoes ..1911	29,000	5,320,000	\$3,393,000
1910	28,000	3,976,000	2,584,000
Hay .....1911	525,000	1,628,000	12,373,000
1910	491,000	1,473,000	13,257,000

a Tons.

MINERAL PRODUCTION. The total value of the mineral products in 1910 was \$15,437,403, as compared with \$14,908,819 in 1909.

This State produces a considerable quantity of gold and silver. The output of gold in 1910 was 53,059 fine ounces, valued at \$1,096,842. The output of silver was 7,369,742 fine ounces, valued at \$3,979,661. In 1911 the production of gold was 56,563 fine ounces, valued at \$1,169,261, a slight increase over the production of 1910. The silver output in 1911 was 7,507,802 fine ounces, valued at \$4,129,291. This increase was due to the steady production at an increased rate from the lead-silver mines of the Cœur d'Alene region and at Gilmore.

The production of copper in the State in 1911 showed a considerable decrease from the output of 1910. As in previous years the main output was derived from the Snowstorm mine in the Cœur d'Alene district. The output from this mine was considerably less than in 1910. A considerable amount of copper is produced, chiefly in the Cœur d'Alene district. In 1910 the output was 6,877,515 pounds of blister copper, as compared with 7,096,132 pounds in 1909.

MANUFACTURES. The Thirteenth Census, taken in 1910, included statistics of manufactures in the State for the calendar year 1909. The results will be found summarized in the table below. It will be seen from this that while the manufacturing interests of Idaho are not much in actual volume, they showed a remarkable increase in the five years from 1904 to 1909. The industries in which are the largest number of establishments, and the greatest capital invested, are those producing lumber and timber products. The value of these products in 1909 was \$22,400,000. Flourmill and gristmill products ranked next, with a value of \$10,689,000. Following are cars and general shop construction and repairs by steam railway companies, printing and publishing, manufactures of butter, cheese and condensed milk, liquors, brick and tile. The total number engaged in manufactures in 1909 was 9909, of whom 9646 were males and 263 females. For the majority of the wage earners, the prevailing hours of labor were 60 hours a week. The following table gives a summary of the results of the censuses for the calendar years 1904 and 1909.

	Number or amount 1909	1904
Number of establishments...	725	364
Persons engaged in industry.	9,909	3,791
Proprietors and firm members.....	831	371
Salaried employees	858	359
Wage earners (average number)	8,220	3,061
Primary horsepower	42,804	16,987
Capital	\$32,477,000	\$9,689,000
Expenses	18,981,000	7,619,000
Services	6,482,000	2,438,000
Salaries	984,000	379,000
Wages	5,498,000	2,059,000
Materials	9,920,000	4,069,000
Miscellaneous	2,489,000	1,112,000
Value of products.....	22,400,000	8,769,000
Value added by manufacture (value of products less cost of materials)	12,480,000	4,700,000

FINANCE. The receipts during the fiscal year 1911 were \$3,792,000. The disbursements were \$2,946,000, leaving a balance in the treasury December 31, 1911, of \$1,699,283. The total outstanding bonded debt of the State at the end of the fiscal year was \$2,402,750.

LEGISLATION. The only statutes of general interest adopted by the legislature of 1911 were measures providing for submission to the people of the initiative, referendum, and recall. The recall does not apply to judicial officers.

STATE GOVERNMENT in 1911: Governor, James H. Hawley; Lieutenant-Governor, Lewis H. Sweetser; Secretary of State, W. L. Gifford; Treasurer, O. V. Allen; Auditor, S. D. Taylor; Attorney-General, D. C. McDougall; Superintendent of Education, Grace Shepard—all Republicans, except Hawley.

JUDICIARY: Supreme Court: Chief Justice, George H. Stewart, Republican; Associate Justices, James F. Ailshie, Republican, Isaac N. Sullivan, Republican; Clerk, I. W. Hart.

STATE LEGISLATURE, 1911: Senate, Republicans, 14; Democrat-Fusion, 9; House, Republicans, 34; Democrat-Fusion, 25; joint ballot, Republicans, 48; Democrat-Fusion, 34; Republican majority, Senate, 5; House, 9; joint ballot, 14.

The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

IDEALISM. See *PHILOSOPHY*.

IDO. See *LANGUAGE, INTERNATIONAL*.

IGNEOUS ROCKS. See *GEOLOGY*.

ILLICIT DISTILLING. See *LIQUORS*.

ILLINOIS. POPULATION. The Thirteenth Census, taken in 1910, showed a population of 5,638,591, as compared with 4,821,550 in 1900, a gain of 16.9 per cent. in the decade. The State ranks third among the States in point of population. The principal cities, with their populations in 1910 and 1900, are as follows: The figures in parenthesis are for 1900. Chicago, 2,185,283 (1,698,575); Peoria, 66,950 (50,100); Springfield, 51,678 (34,150); Rockford, 45,401 (31,051); Quincy, 36,587 (36,252); Joliet, 34,670 (29,353); Decatur, 31,140 (20,750); Moline, 24,199 (17,248).

AGRICULTURE. The Thirteenth Census included statistics of agriculture, of date April 15, 1910. On that date the farms in the State numbered 251,872, as compared with 264,151 in 1900, a decrease of 12,279, or 4.6 per cent. The land in farms amounted to 32,522,937 acres, as compared with 32,794,728 in 1900. The improved land in farms was 28,048,323 acres, as compared with 27,699,219 in 1900. The average acres per farm was 129.1. The value of farm property was \$3,905,321,075, as compared with a value in 1900 of \$2,004,316,897, an increase in value of \$1,901,004,178. This property included land, buildings, implements and machinery, domestic animals, poultry, and bees. The average value of all property per farm was \$15,505, as compared with a value of 7588 in 1900. The average value of land per acre was \$95.02, as compared with \$46.17 in 1900. The farms operated by owners and managers in 1910 were 147,493; by tenants, 104,379; of the farms operated by owners, those free from mortgage numbered 86,713, and those mortgaged, 55,792. Of the 251,872 farms in the State 217,053 were operated by native whites, 33,394 by foreign-born whites, and 1425 by negroes or other non-whites. The total value of the various kinds of domestic animals, poultry, and bees in 1910 was \$308,804,431, as compared with a value in 1900 of

\$193,758,037. The cattle numbered 2,440,577, valued at \$73,454,745; horses and colts, 1,452,887, valued at \$163,363,400; mules, 147,833, valued at \$18,140,335; swine, 4,686,362, valued at \$36,210,179; sheep and lambs, 1,059,846, valued at \$4,843,736. The poultry of various kinds numbered 21,409,835, valued at \$11,696,650. The acreage, production, and value of the various crops in 1910-11 will be found in the table below:

		Acreage	Prod., bu.	Value
Corn	.....1911	10,150,000	334,950,000	\$184,222,000
	.....1910	10,250,000	400,775,000	152,294,000
Wheat	.....1911	2,625,000	42,000,000	37,380,000
	.....1910	2,444,000	36,360,000	32,261,000
Oats	.....1911	4,220,000	121,536,000	51,045,000
	.....1910	4,325,000	164,350,000	49,305,000
Rye	.....1911	52,000	874,000	708,000
	.....1910	58,000	1,009,000	716,000
Potatoes	.....1911	138,000	6,900,000	6,210,000
	.....1910	146,000	10,950,000	6,460,000
Hay	.....1911	2,376,000	a 1,948,000	33,116,000
	.....1910	2,795,000	3,717,000	44,604,000
Tobacco	.....1911	1,000	b 750,000	58,500
	.....1910	1,500	1,185,000	112,575

a Tons. b Pounds.

MINERAL PRODUCTION. The mineral products of the State in 1910 were valued at \$141,809,121, compared with a value in 1909 of \$143,051,729. Petroleum was produced to the amount of 33,143,362 barrels, valued at \$19,669,383 in 1910, as compared with 30,898,339 barrels, valued at \$19,788,864, in 1909.

That total production of coal in the State in 1910 amounted to 45,900,246 short tons, valued at \$52,405,897, as against 50,904,990 short tons in 1903, valued at \$52,405,897. The State was the storm centre of the struggle between the operators and the mine workers, which began April 1, 1910, and tied up the industry in most of the mining districts of the State for nearly six months. It was the most protracted and most bitterly contested strike in the history of bituminous coal mining in the United States (see *STRIKES*). As a result of the decreased production, Illinois lost second place as a producer of coal to West Virginia. In 1910 out of a total of 72,264 men employed in the coal mines of the State, 67,218 were idle for an average of 136 days. In the fiscal year ending June 30, 1910, there were 390 fatal and 737 non-fatal accidents in the coal mines of the State.

FINANCE. The reports of the treasurer are made for the biennial period, October 1, 1908, to September 30, 1910. There was in the State treasury on the former date, \$3,859,263. The receipts for the biennial period amounted to \$21,611,919 and the disbursements to \$21,046,572, leaving in the treasury on September 30, 1910, \$4,424,610. The bonded debt of the State outstanding October 1, 1910, was \$17,500, consisting of bonds which have been called in by a proclamation of the governor and have ceased to draw interest, but have not been surrendered. The total amount of State taxes levied in 1909 was \$83,269,865.

CHARITIES AND CORRECTIONS. The General Assembly in 1911 was more liberal in its treatment of the State charitable institutions than any of its predecessors. Its appropriations were by far the largest on record.

The total appropriations were \$9,753,098 for

two years beginning July 1, 1911, of which sum \$6,915,848 was for ordinary maintenance, \$1,184,250 for new buildings and permanent improvements, \$135,000 for a new water supply at Anna State Hospital, \$583,000 for the maintenance and new structures at the Cook County Hospital for the Insane, which the State takes over on July, 1912, \$500,000 for the purchase of a site and the construction of the underground work for a new hospital for the insane to cost not less than \$1,200,000, \$80,000 for the erection of a surgical institute for crippled children on 160 acres, which are to be donated to the State, \$10,000 for the visitation and education of the adult blind in their own homes. Among the improvements authorized are homes for employees, so that when these are constructed all the large institutions, except Anna Hospital, will be provided with such buildings. All the hospitals for the insane are now equipped with modern high-class psychopathic receiving hospitals or wards. The State Psychopathic Institute was provided with enough money to place it thoroughly on its feet and to complete its equipment and staff. It now has a director, an assistant, a chemist, a pathologist, and a bacteriologist. Liberal appropriation was also made to permit the Illinois Pellagra Commission to continue its investigations into the causes of this disease. The appropriation for the department of visitation of children was more than doubled and additions were made to its force of visitors and inspectors. The plans have been drawn for the new State prison at Joliet, and 2500 acres of land on which it is to be erected have been purchased. This institution will cost in the neighborhood of \$7,000,000, and will permit the abandonment of the present prison plant. By July 1, 1912, all insane in the county farms of the rural counties will have been removed to State hospitals under the terms of the 1907 complete State care law, and on that day the State will take over bodily the Dunning or Cook County Hospital for the Insane with its 2700 patients; thus completing the intention of this act.

EDUCATION. The total enrollment for the year ending June 30, 1911, in the public schools of the State was as follows:

Boys in graded schools....	364,118
Girls in graded schools....	361,634
Boys in ungraded schools..	145,903
Girls in ungraded schools..	136,239
Total	1,007,894
Boys in private schools...	82,108
Girls in private schools....	87,223
Total	169,331
Total enrollment.....	1,177,225

There are 11,843 school districts in the State, 10,633 of them maintaining one-room schools and the other 1210 districts maintaining schools in 2505 buildings, containing more than one room and are known as graded schools. The city of Chicago is known as one school district and has one-third of the enrollment of the State. There were 519 secondary or high schools in the State, 144 of which are maintained in buildings built especially for them.

The total cost of the public schools for the year was \$37,705,411.97, of which amount \$18,195,917.72 was paid for teaching.

The total value of school buildings and grounds owned by the public is \$88,819,664.

The proceeds of the sales of the sixteenth section that is used as an endowment fund of the public schools amounts to \$19,168,579.20, from which an income of \$847,677.75 was derived.

POLITICS AND GOVERNMENT

The legislature met in 1911 in a regular and a special session. At the regular session many important measures were passed and these are noted in the paragraph *Legislation*, below. The special session was called to pass a deep-waterway measure. It assembled June 14 and adjourned June 29 until October 24. At the October session the waterway bill was defeated. The most interesting occurrences during the session of the legislature were connected with the Lorimer investigation (see below). An attempt was made to pass a bill extending the local option area from townships to counties, but this was rejected by the lower house in April. An attempt to repeal the local option law altogether also failed to succeed. Resolutions providing for initiative and referendum caused a long and hard fight, but were beaten. Defeat also resulted to the efforts of would-be reformers of the constitution of the State to have a constitutional convention authorized.

ELECTIONS. There were no elections for State officers during the year. The most important political contests related to municipal elections. Commission government was adopted during the year by the cities of Springfield, Moline, Rock Island, Ottawa, Decatur, Dixon, Elgin, Kewanee, Jacksonville, Pekin, Waukegan, Spring Valley, and Hillsboro. A number of cities rejected the commission plan, in elections called on the question. The State Supreme Court, in the year, gave a decision upholding the constitutionality of commission government for cities.

On February 28 the first primary elections for the nomination of candidates for mayor of Chicago were held in that city. The leading candidates for the Republican nomination were Charles E. Merriam, professor of political science at the University of Chicago and a member of the city council, John R. Thompson, a prominent business man who was affiliated in politics with the regular organization, and John F. Smulski, who was also identified with the party organization, and had the support of Governor Deneen. As a result of the primaries, Mr. Merriam received 53,089 votes, or more than the votes cast for Mr. Thompson and Mr. Smulski combined. The Democratic candidates for the nomination were Carter H. Harrison, who had four times previously served as mayor of the city, E. F. Dunne, a former mayor and Andrew J. Graham a banker. Mr. Harrison received the nomination, but there were cast for him only 1420 votes more than those cast for Mr. Dunne, who received 53,696 votes. After a campaign of unusual bitterness, Mr. Harrison was elected mayor on April 4. He received 177,997 votes to 160,672 cast for Mr. Merriam. With a few exceptions, the Republican organization leaders were hostile to Mr. Merriam, who had received his nomination at the direct primaries. One of the causes of his defeat was believed to be his assertion that he would be strict in the enforcement of the laws and ordinances relating to liquor selling and Sunday amusements. Supporters of Mr. Harrison, on the other hand, raised a cry of personal liberty

and no "blue laws." The State law prohibiting Sunday liquor selling has been unenforced in Chicago for many years. Other demands of the Merriam campaign were progressive policies, administrative efficiency, and opposition to all forms of graft. Mr. Harrison duplicates the history of his father, who also served four terms as mayor of Chicago, and then after an interval of six years was again chosen.

An election was held in the State on November 7 for judges and minor officers. In Chicago seven Republican and three Democratic Superior Court judges were chosen.

THE LORIMER ELECTION CHARGES. The charges brought against Senator Lorimer to the effect that his election to the United States Senate had been brought about by bribery and corruption in the State legislature, continued to form the chief political feature of the year in Illinois. These charges were first published in April, 1910, and were included in the alleged confession made by Charles A. White, a Democratic member of the House, who charged that certain leaders in the State legislature had raised a fund which was used to bribe Republican members to vote for Mr. Lorimer. These charges were brought before the United States Senate and, at the request of Mr. Lorimer, the committee on elections was appointed to investigate the charges. These investigations were carried on during the fall and early winter of 1910. On December 12 a majority of the committee made a report to the Senate in which Senator Lorimer was exonerated from any complicity in bribery. In this report the majority members declared that the charges were made by persons who were unworthy of belief, and that in any event Senator Lorimer received enough untainted votes to secure his election. Two members of the committee dissented from the views of the majority. Senator Frazier of Washington in the minority report took the ground that the evidence, reasonably construed, implicated enough members of the legislature to have made Senator Lorimer's election turn upon these transactions. Senator Beveridge of Indiana, having made a careful study of the case, on January 9, 1911, presented a minority report to the Senate and at the same time offered a resolution to declare vacant the seat held by Senator Lorimer, on the ground that he had not been duly and legally elected. The debate on the acceptance or rejection of the report by the Senate continued until March 1, when a vote was taken. The Senate refused to unseat Senator Lorimer by a vote of 46 to 40.

In the meantime the State legislature had taken action. Early in January a resolution was passed authorizing a thorough investigation of the charges by a committee of the Senate. This investigation brought out certain new facts. The most important of these was the charge in the *Chicago Record-Herald* that a corruption fund of \$100,000 had been raised by business men to elect Senator Lorimer. H. H. Kohlsaat, editor of the newspaper, was at once summoned before the committee. He testified that he had heard that such a sum had been raised, but refused to reveal the source of his information on the ground that he was pledged to secrecy by his informant. After Mr. Kohlsaat had been threatened with imprisonment for contempt, Clarence H. Funk, general manager of the International Harvester Company, made public the fact that he was the editor's informant. Mr.

Funk appeared before the committee and testified that Edward Hines, head of a lumber company, had solicited his contribution to a fund for reimbursing those who paid \$100,000 to elect Senator Lorimer, and that Edward Tilden, president of the National Packing Company, had been named by Hines as collector for the fund. Mr. Funk declared he had refused to contribute to the fund. On the publication of this testimony, Mr. Hines declared emphatically that he had never solicited a contribution from Mr. Funk. He had previously testified as a witness that he had never discussed with anyone the question of raising money, and had heard of no one who had raised or solicited money for the election of Senator Lorimer before or after his election. As a result of this and other testimony, on May 17, the special investigating committee of the State Senate—commonly called the Helm committee—reported that the election of Senator Lorimer could not have been accomplished without bribery and corruption. On the following day a resolution was adopted asking the United States Senate to reopen the investigation. Even before this request had been received from the Illinois Senate, an attempt had been made in the United States Senate to reopen the investigation. On April 6, Senator La Follette of Wisconsin submitted a resolution reciting that new testimony had been made available as a result of the investigation by the committee of the Illinois Senate, and asking for the appointment of a select committee of five Senators, three Republicans and two Democrats. A substitute for this resolution was passed June 1, directing the committee on privileges and elections to reopen the investigation. On June 5 the committee named a sub-committee of eight members to inquire into all phases of the charges made. This committee was composed of Senators Dillingham, Gamble, Jones, and Kenyon, Republicans, and Johnston, Fletcher, Kern, and Lea, Democrats. Senators Dillingham, Gamble, Johnston, and Fletcher had voted against unseating Senator Lorimer at the previous session, and Senator Jones had voted in favor of unseating him. Senators Kenyon, Kern, and Lea were not in the Senate at the time of the previous investigation, but were known to be opposed to the seating of Senator Lorimer. The hearing was carried on in Washington during the summer, and in addition to the testimony heard at the previous investigation several new witnesses appeared. Among them were former Senator Albert J. Hopkins, Mr. Kohlsaat, and others. The hearings were in Washington until the middle of August, and were then held in Chicago. At the end of the year no report had been made by the committee. The Lorimer defense sought to show a bitter feeling between Mr. Hines and Mr. Funk, and charged that a newspaper, the *Chicago Tribune*, had framed a conspiracy to unseat Senator Lorimer because of political enmity.

OTHER EVENTS. Charges of fraud in the elections of 1910 were made in several counties of the State, and on February 14, 22 men were indicted for selling votes at an election held in Petersburg, Menard county. A still more serious condition prevailed in Vermillion county, in which is the city of Danville. Investigation of the alleged election frauds in this county were undertaken by a grand jury under the direction of Judge R. E. Kimbrough. Politicians and office-holders of both parties, including

Judge Kimbrough himself and Mayor Platt of Danville, were subpoenaed and asked to tell the grand jury all the facts in their possession in regard to the reported bribes of 3000 to 4000 voters. It was alleged in the newspapers that the Democrats had spent \$40,000 to carry the city of Danville in 1910. On March 14 the Vermillion county grand jury found 37 indictments, 14 of which were for electoral corruption. The small number of indictments compared with the accusations made, caused the public impression that the inquiry was a failure. No prosecutions were made during the year, under the indictments.

On April 5 the Chicago Vice Commission, appointed nearly a year previously to investigate conditions in Chicago, made its report to the city council. The report showed that Chicago spent \$15,000,000 annually on sexual vice, and recommended new State and municipal laws to declare evil resorts nuisances, an identification system for women in resorts, the protection of immigrant girls, a trade school and hospital for unfortunate women, and other regulations. For immediate initiation of reform the commission recommended the establishment of a morals commission and a morals court by the city. No action was taken on the report, in the year.

In October the city council approved a proposal made by the mayor that a commission be appointed to form plans for a subway system for the city of Chicago. A commission of three engineers was created to prepare plans for the subway and also for an outer harbor—on the lake front. This commission, headed by John Ericson, city engineer, reported plans for a subway system to serve the downtown district and to accommodate street cars and elevated railway trains, and also plans for two piers as the nucleus of the projected lake-front harbor. Construction on both the subway and the harbor will be begun, it is expected, in 1912. The subway, as projected, is to cost about \$10,000,000; the harbor about \$5,000,000. An outer harbor is considered necessary because of the congestion of the Chicago River, heretofore the city's chief harbor.

An investigation of the police force of Chicago, begun in the summer of 1911, by the city civil service commission, resulted in the discovery that the force was honeycombed with graft and corruption. As a result of the investigation the force was reorganized, the office of inspector being abolished and new regulations adopted designed to prevent the protection of vice and crime by police officers. At the end of the year the investigation was in progress, with every prospect that it would develop still more startling exposures.

LEGISLATION. The important measures passed at the legislative session of 1911 include the following: Several important bills were passed relating to legal proceedings. Provision was made for a system of probation in criminal cases, together with the suspension of final judgment. An act regulating the civil service of the State was considerably amended, and a bill was passed resembling the act relating to civil service in counties. An interesting measure provides for the establishment of a surgical institution for the surgical treatment of children under fourteen years of age, suffering from physical deformity or injuries of a nature likely to yield to surgical skill and treatment, and which unless so treated would probably make such chil-

dren in whole or in part public charges in after life. Another bill authorized the establishment of classes and schools by school directors and boards of education for deaf, dumb, and blind children. School directors and boards of education in cities are authorized to establish and maintain classes and schools for delinquent children. A measure was passed which imposed the most stringent regulations on the employers of labor, and liability for non-compliance. The laws in relation to coal mines and subjects relating thereto were amended, and provision was made for the health and safety of persons employed in mining coal. The pure food law of the State was amended, especially as regards the storing, packing, and distribution of food. The use of a common drinking cup, glass, or utensil in public and private schools and other public and semi-public places is prohibited. The act relating to dependent children was amended so as to provide that if the parents of such children are poor and unable properly to care for them, and are otherwise proper guardians, and it is for the welfare of the children to remain at home, the court having jurisdiction over such matters may enter an order finding such facts and fixing an amount of money necessary to enable the parent or parents properly to care for the children.

February 24 the contract between the city of Chicago and the People's Gas Light and Coke Company, the monopoly supplying gas to the city, ended. Gas had been furnished under this contract for 85 cents per 1000 feet. The election of Mayor Harrison was caused in part by his insistence that gas could be furnished at a fair profit to the company for 70 cents a 1000 feet. An expert on the question, W. J. Hagenah, employed by the outgoing city administration (that of Mayor Busse) refused to report on the price before the election of April 4. On April 17 he reported to the city council that the company could furnish gas at a fair profit, at the price of 77 cents. The incoming mayor and Democratic aldermen were dissatisfied with this recommendation and hired E. W. Bemis as an expert, to report on the question. Mr. Bemis reported, July 5, that fair rates would be 75 cents for the first year of a new contract, 70 cents the second, third, and fourth years, and 65 cents for the fifth year. July 18 the council passed an ordinance fixing a rate of 70½ cents per 1000 feet, for five years. The gas company sought the aid of the courts and August 2 Judge Gibbons, in the State court, fixed a rate of 80 cents to be charged after August 7 and until a final adjudication of the proper cost.

On the plea of non-resident stockholders, the company took the case into the federal court. November 14 Judge Kohlsaat, in the United States District Court, enjoined the enforcement of the 70½ cent rate. December 4 he denied a permanent injunction against enforcement of the city council's rate, and the year closed with the case still in the federal court, but the State court case pending, and with prospects of a long-drawn-out suit before a settlement of the matter.

STATE GOVERNMENT IN 1911. Governor, Charles S. Deneen; Lieutenant-Governor, John G. Oglesby; Secretary of State, James A. Rose; Treasurer, Edward E. Mitchell; Auditor, J. S. McCullough; Attorney-General, W. H. Stead; Adjutant-General, Frank S. Dickson; Superintendent of Public Instruction, Francis G. Blair;

Superintendent of Insurance, Fred W. Potter—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Orrin N. Carter, Republican; Associate Justices, Alonzo K. Vickers, Republicans; William M. Farmer, Democrat; George A. Cooke, Democrat; John P. Hand, Republican; Frank D. Dunn, Republican; James H. Cartwright, Republican; Clerk of the Court, J. McCan Davis, Republican.

STATE LEGISLATURE, 1911. Republicans, Senate, 34; House, 82; joint ballot, 116; Democrats, Senate, 17; House, 68; joint ballot, 85; Independents and Prohibition, Senate, 0; House, 3; joint ballot, 3; Republican majority, Senate, 17; House, 11; joint ballot, 28.

The representatives in Congress will be found in the article UNITED STATES, section Congress.

ILLINOIS, UNIVERSITY OF. An institution of higher learning at Urbana-Champaign, founded in 1867. The students enrolled in the various departments of the university for the year 1911-12 were 5207. The total number of members of the faculty was 615. The productive funds of the university amounted to about \$660,000. The income is derived from State appropriation, from the United States government, and other sources and amounts to about \$1,500,000. Among the important additions to the faculty for the collegiate year 1911-12 were the following: Raymond M. Alden, professor of English; Charles R. Richards, professor of mechanical engineering; Chester G. Vernier, professor of law; Burt R. Richards, associate professor of municipal and sanitary dairying; Alexander D. MacGillivray, professor of systematic entomology, and Alonzo M. Buck, assistant professor of railway engineering. Two new buildings were opened during the year: Lincoln Hall, a three-story building, erected to provide accommodations for advanced work in several departments, at a cost of \$250,000; and a considerable addition to the power plant. The library contains about 175,000 volumes. The president is E. J. James, Ph. D., LL. D.

ILLINOIS OIL FIELD. See PETROLEUM.

ILLUMINANTS. See ELECTRIC LIGHTING.

IMMIGRATION AND EMIGRATION.

The number of immigrants arriving in the United States from foreign countries in 1911 was less than in 1910 by 162,983. The figures for the respective years are 878,587 and 1,041,570. The decrease in 1911 was confined to the last eight months of the fiscal year. In addition to the aliens of the immigrant class, there entered 151,713 non-immigrants. These are travelers from abroad who intend to make only a temporary stay in the United States. The total number of aliens arriving in 1911 was therefore 1,030,300. The departures during the year numbered 518,215. Of these 295,656 were emigrants and 222,549 non-emigrants. The non-emigrants are those former immigrants who made temporary visits to foreign countries. It will be seen that the total gain in population of immigrants in the fiscal year 1911 was 512,085, as compared with 817,619 in 1910 and 543,843 in 1909. The actual gain was therefore less in 1911 than for several years. The table below shows the country of origin and the number of immigrants in 1910-11. This table includes only immigrants:

Countries	1910	1911
Austria	185,793	82,129
Hungary	122,944	76,928

Countries (cont.)	1910	1911
Belgium	5,402	5,711
Bulgaria, Servia, and Montenegro	4,737	4,695
Denmark	6,984	7,555
France, including Corsica	7,383	8,022
German Empire	31,283	32,061
Greece	25,888	26,226
Italy, inc. Sicily and Sardinia	215,537	182,882
Netherlands	7,534	8,358
Norway	17,538	18,950
Portugal, including Cape Verde Islands and Azores	8,229	8,374
Rumania	2,145	2,522
Russian Empire and Finland	186,792	158,721
Spain, including Canary and Balearic Islands	3,472	5,074
Sweden	23,745	20,780
Switzerland	3,533	3,458
Turkey in Europe	18,405	14,438
United Kingdom:		
England	46,706	52,426
Ireland	29,855	29,112
Scotland	20,115	18,796
Wales	2,120	2,162
Other Europe	151	377
Total Europe	926,291	764,757
China	1,968	1,460
Japan	2,720	4,520
India	1,696	524
Turkey in Asia	15,212	10,229
Other Asia	1,937	695
Total Asia	23,533	17,428
Africa	1,072	956
Australia, Tasmania and New Zealand	998	984
Pacific islands, not specified	99	59
British North America	56,555	56,830
Central America	893	1,193
Mexico	18,691	19,889
South America	2,151	3,049
West Indies	11,244	13,403
Other countries	43	39
Grand total	1,041,570	878,587

It is shown by this table that the largest number of immigrant aliens came from Italy, and the second largest number came from the Russian empire and Finland. There was a marked decrease if immigrants from Austria and Hungary and the total from Russia and Finland also decreased, as it did from Italy.

The largest number of immigrant aliens was admitted at the port of New York. These numbered 637,003. At Boston 45,865 were admitted; at Philadelphia, 45,023, and at Baltimore, 22,866. From border stations were admitted 58,350. The States to which the largest number of aliens went as permanent residents were: New York, 260,278; Pennsylvania, 114,922; Illinois, 76,565; Massachusetts, 70,811, and New Jersey, 46,782. Every State in the Union received some of the immigrants admitted in 1911.

OCCUPATION OF IMMIGRANTS. Of the total number of aliens admitted in 1911, 12,035 were classed as professional, including clergymen, editors, teachers, engineers, lawyers, physicians, artists, etc.; 148,892 were classed as skilled laborers; 471,638 were classed as miscellaneous, and 246,022 were classed as having no occupation. These included women and children.

SOURCES OF IMMIGRATION. As noted above, the larger number of the aliens coming to the United States are from Italy, Russia, and Austria-Hungary. While in former years a very large number of the immigrants came from Teutonic and Celtic countries of northern and western Europe, during 1911 only 202,391 came from these countries, which include Denmark, Belgium, France, Germany, Netherlands, England, Ireland, Scotland and Wales.

A serious feature of the question of immigration is the fact that many of the aliens now coming to the United States do so as the result of artificial means of inducement held out by agents and corporations, whose principal business is to increase the steerage passenger business and to introduce into the United States an over-abundant and therefore cheap supply of common labor. Another fact which tends to accentuate the seriousness of the problem is the habit of most of the immigrants to colonize and thus discourage distribution and even and quick assimilation. So far no plan has been devised which affords a practical and far-reaching system of distribution of present-day immigration. Efforts have been made by societies and otherwise to make such distribution, but so far the results have not been entirely successful.

JAPANESE IMMIGRATION. The immigration of Japanese into the United States and Hawaii in 1911 showed an increase over 1910. In the former year 4282 Japanese were admitted, as compared with 2598 in 1910. The figures for 1911, however, should be compared with those of 1908, the first year in which the present regulations for restriction of Japanese immigrants went into effect. In that year 9544 Japanese were admitted to the continental United States, and 8694 to Hawaii.

CHINESE EXCLUSION. During 1911 5107 Chinese were admitted as compared with 5950 in 1910, 6395 in 1909, and 4624 in 1908. These Chinese aliens were made from the exempt class, which includes merchants, students, teachers, etc. In 1911 692 Chinese were deported, as against 969 in the preceding year. In spite of the efforts to enforce the exclusion law a number of Chinese each year secure admission into the United States through illegitimate means.

EMIGRATION INTO CANADA. The question of the emigration of citizens of the United States into Canada was much discussed during 1911, chiefly in connection with the attempt to pass the reciprocity measure. During the fiscal year 119,753 persons left the United States for Canada, while 105,512 emigrated from Canada to the United States. In 1910 the emigrants from the United States to Canada numbered 116,377, and the immigrants from Canada to the United States, 94,528.

LEGISLATION. As a result of the report of the Immigration Commission made in 1910, a new law regulating immigration was introduced into Congress, but no action had been taken on this at the end of the year. This measure makes an attempt to regulate and restrict immigration and contains provisions for the abolition of the so-called white slave traffic.

IMPERIAL CANCER RESEARCH COMMISSION. See **CANCER**.

IMPERIAL CONFERENCE, BRITISH. See **GREAT BRITAIN, History**.

INCANDESCENT LAMPS. See **ELECTRIC LIGHTING**.

INCH, RICHARD. A rear-admiral, retired, of the United States navy, died April 21, 1911. He was born in Washington in 1843, and was educated in East Washington Seminary and Washington Seminary. In 1863 he was appointed third assistant engineer in the United States navy, and after passing through several grades, became chief engineer. He was made commander in 1899, captain in 1902, and was

retired as rear-admiral in 1905. He served from 1863 to the end of the Civil War. From 1899 he was placed in charge of the engineering department of the Cavite Naval Station, Philippine Islands. Before this he was chief engineer of the *Boston* at the battle of Manila Bay, and was advanced three grades for conspicuous merit on that occasion.

INCINERATION. See **GARBAGE AND REFUSE DISPOSAL**.

INCOME TAX. See **TAXATION**.

INDETERMINATE SENTENCE. See **PENOLOGY**.

INDIA, BRITISH. British India is that part of East India governed by the king of Great Britain (emperor of India) through the governor-general of India or the latter's subordinates. India, as defined by the British Parliament, includes British India and the Native States under the suzerainty of the British government. Capital of British India, Calcutta. Announcement was made in December, 1911, that the seat of government would be transferred to Delhi.

AREA AND POPULATION. The census of March 15, 1901, showed that British India, with an area of 1,097,901 square miles, had a population of 231,072,832, and that the Native States, comprising 675,267 square miles, had 62,288,224 inhabitants; total, 1,773,168 square miles and 294,361,056 inhabitants. The census of March 10, 1911, showed a total population of 315,132,567, of whom 244,267,542 were assigned to British India and 70,864,995 to the Native States. The following table gives the returns in detail:

	Sq. miles	Population
States of British India:		
Ajmer-Merwara	2,711	501,395
Andamans and Nicobars.....	3,143	26,459
British Baluchistan	45,804	414,412
Bengal	107,363	52,668,269
Bombay (Presidency)	123,064	19,672,642
(Aden)	(80)	(46,165)
Burma	236,738	12,115,217
Central Provinces and Berar	100,345	13,916,308
Coorg	1,582	174,976
Eastern Bengal and Assam..	106,130	34,018,527
Madras	141,726	41,405,404
North-West Frontier Province	16,466	2,196,993
Punjab	97,209	19,974,956
United Provinces of Agra and Oudh	107,164	47,182,044
Total British India.....	1,089,445	244,267,542
Natives States:		
Baluchistan (Agency tracts)	86,511	396,432
Baroda	8,099	2,032,798
Bengal States	41,229	4,538,161
Bombay States	65,761	7,411,675
Central India Agency.....	78,772	9,356,980
Central Provinces States....	31,188	2,117,002
Eastern Bengal and Assam .....	.....	575,835
Hyderabad	82,698	13,374,676
Kashmir	80,900	3,158,126
Madras States	9,969	4,811,841
Mysore	29,444	5,806,193
North-West Frontier Province (Agencies, etc.).....	.....	1,622,094
Punjab States	36,532	4,212,794
Rajputana Agency	127,541	10,530,432
Sikkim .....	.....	87,920
United Provinces States.....	5,079	832,036
Total Native States	683,723	70,864,995
Total India	1,773,168	315,132,567
1901 .....	.....	294,361,056
1891 .....	.....	287,314,671

By a transfer of 8456 square miles from the Bengal Province (British) to the Bengal Native States, the area of British India and the area of the Native States became 1,089,445 and 683,723 square miles respectively; the population of the former area in 1901 was 231,624,807, and of the latter 62,736,249. In the foregoing table, it will be observed that the total population of the Native States includes 2,305,849 persons dwelling in various scattered states and agencies, which are included in the total area for British India.

Of the total population, 161,326,110 were males, and 153,806,427 females. The number in British India was about 78 per cent. of the total, and in the Native States about 22 per cent.

The larger cities, including cantonments, with population (subject to slight revision) in 1911: Calcutta, including suburbs and Howrah, 1,216,514; Bombay (city and island), 972,936; Madras, 517,335; Hyderabad, including suburbs, 499,840; Rangoon, 293,316; Lucknow, 260,261; Delhi, 232,859; Lahore, 228,318; Ahmadabad, 215,448; Benares, 204,222; Bangalore, 189,393; Agra, 182,419; Cawnpore, 174,037; Allahabad, 166,463; Karachi, 159,270; Poona, 157,666; Amritsar, 152,866; Mandalay, 138,456.

In 1901 the principal religions in India were thus represented: Hindu, 207,147,026; Mohammedan, 62,458,077; Buddhist, 9,476,759; Animist, 8,584,148; Christian, 2,923,241.

EDUCATION. Steady progress is reported in the development of the educational system. It is certain that the census of 1911 will show a considerably smaller proportion of illiterates than did the census of 1901, when only about one male in ten and one female in 144 could read and write. The total number of educational institutions, including primary schools, on March 31, 1900, was 150,584; in 1909, 168,228; 1910, 170,590. Total number of pupils and students in 1900, 4,463,735; in 1909, 5,984,110 (including 784,075 females); in 1910, 6,214,995 (831,954 females). Of the institutions, about 70 per cent. are maintained by the state or aided by grants, the rest being private and unaided. Expenditure on public education (exclusive of that in British Baluchistan) in fiscal years: 900, £2,515,268; 1909, £4,397,552; 1910, £4,588,082 (of which £2,412,171 from provincial revenues and local and municipal funds and £1,237,982 from fees). There are five universities (Calcutta, Madras, Bombay, Allahabad, and the Punjab); these are examining bodies (though an act of 1904 provides for a teaching system), but have numerous affiliated colleges.

AGRICULTURE. In 1909-10 some 254,000,000 acres were cropped in British India, of which about 34 per cent. was under rice, 11 per cent. under wheat, 41 per cent. under other food grains and pulses, 6 per cent. under oilseeds, and 7 per cent. under cotton, jute, and other fibres. Other crops include sugar, spices, tea, opium, tobacco, coffee, and indigo. Indigo culture has greatly declined in recent years. Of the total area under crops, nearly one-fifth is irrigated. Reported figures of production in India are not complete, details from some of the Native States being unavailable; but the statistics approximate sufficiently to the actual yield and, covering about the same territory from year to year, have a comparative value. Some of the more important yields, as officially reported for 1907-8 and 1908-9, are: Rice (cleaned), 379,211,300 and 598,909,800 cwt.; wheat, 6,106,700

and 7,590,000 tons; rape and mustard, 688,000 and 988,000 tons, sesamum, 285,700 and 474,600 tons; cane sugar, 2,046,900 and 1,841,800 tons; cotton, 4,291,000 and 4,776,000 bales (of 400 lbs.); jute, 9,817,800 and 6,310,800 bales; linseed, 163,200 and 288,800 tons; tea, 248,020,397 and 247,477,324 lbs. For 1906-7 wheat production, in bushels of 60 lbs., is stated at 317,023,500; 1907-8, 227,983,487; 1909-10, 357,940,798; 1910-11 (preliminary), 369,432,000;—linseed, in bushels of 56 lbs., is reported at 17,008,000 in 1906-7, 6,528,000 in 1907-8, 17,104,000 in 1909-10, and 22,600,000 (preliminary) in 1910-11. The 1910 cotton crop amounted to 3,809,000 bales; the estimate for 1911 was 3,102,000. Rice production in 1910, 283,038,459 metric quintals.

MINERALS. The coal output (of which about nine-tenths is in Bengal) increased from about 11,870,000 tons in 1909 to 12,046,000 in 1910. Petroleum (produced chiefly in Burma) amounted to about 215,000,000 gallons in 1910, against 19,000,000 in 1908. Salt in 1910, 1,486,000 tons; manganese ore, 801,000 tons; gold (almost entirely in Mysore), 573,000 ounces. There is a considerable output of mica, jade, and rubies.

MANUFACTURES. Cotton and jute textiles are the most important manufactures; others include paper, woollens, indigo, foundry products, beer, silk filatures, and sugar. The ancient village handicrafts still survive, though they suffer more and more from the competition of machine-made goods. There are reported as in operation in 1909-10 215 cotton mills (mostly in the Bombay Presidency), representing a capital of about £12,648,000, with 5,774,000 spindles and 74,600 looms, and an output of 593,000,000 lbs. of yarn and 245,000,000 lbs. of tissues. There were 60 jute mills (in or near Calcutta), representing a capital of £7,674,000, with 645,862 spindles and 31,418 looms. Employees in the cotton mills numbered 231,850, and in the jute mills 204,104. Owing to complaints of long hours in mills, an act of 1911 restricts the hours of adult males to 12, of women to 11, and of children to 6 per day in the textile factories.

COMMERCE. For years ended March 31, the foreign trade of India has been valued as follows, in thousands of pounds sterling:

Sea-borne trade	1900	1909	1910	1911
Imports:				
Private mdse.....	47,141	80,844	78,038	86,240
Government stores	3,062	5,008	3,727	2,901
Total mdse.....	50,203	85,852	81,765	89,141
Priv. treasure.....	13,972	15,088	24,951	26,468
Gov't treasure	10	75	65	46
Total treasure....	13,982	15,163	25,016	26,514
Total imports....	64,185	101,015	106,781	115,655
Exports:				
Private mdse.:				
Domestic prod.....	70,456	99,905	122,998	136,582
Foreign prod.....	2,195	2,114	2,259	2,841
Total	72,651	102,019	125,257	139,423
Gov't stores	71	77	55	63
Total mdse.....	72,222	102,096	125,312	139,476
Priv. treasure....	5,300	3,971	4,262	4,746
Gov't treasure....	4	242	4	6
Total treasure....	5,304	4,213	4,266	4,752
Total exports....	78,026	106,309	129,578	144,228
Net exps. mdse....	22,519	16,244	43,547	50,335
Net imps. treas....	8,678	10,950	20,750	21,762
Excess exports	13,841	5,294	22,797	28,573

Figures for the frontier trade are of doubtful accuracy; for 1909-10 imports are reported at £5,638,000 and exports, £4,545,000, and for 1910-11 imports £6,127,000 and exports, £4,952,000. The total sea-borne trade in 1911 was the largest on record, although the import value was less than in 1907-8, when it reached £119,215,000. There was an increase in imports of cotton goods, apparel, sugar, glass, spices, metals, hardware and cutlery, mineral oil, and woolen goods; but machinery and railway materials showed a decline. Values of the leading sea-borne imports of private merchandise were as follows in 1910-11, in thousands of pounds sterling: Cotton goods and yarn, 29,894; metals, 9660; sugar, 8777; machinery, etc., 3154; railway materials, 2830; mineral oil, 2259; hardware, etc., 2231; apparel, 2065; provisions, 2020; woolen goods, 2013; silk goods, 1843; liquors, 1265; glass, 1045; spices, 1028; dyes and tans, 896; carriages, wagons, etc., 854; instruments, etc., 825. Principal sea-borne domestic exports in 1910-11, in thousands of pounds sterling: Raw cotton, 23,402; seeds, 16,749; rice, 15,490; jute manufactures, 11,330; raw jute, 10,327; wheat and flour, 9060; hides and skins, 8723; opium, 8509; tea, 8278; cotton yarn and cloth, 7341; raw wool, 1891; lac, 1429; pulse, millets, etc., 1177; oils, 1067; coffee, 888; fodder, etc., 816. As may be seen from foregoing figures, the great bulk of the imports consists of manufactures; about 70 per cent. of the exports are food-stuffs and raw materials.

The percentages shared by the leading countries in the imports of private merchandise (total £86,240,000) and the exports of private merchandise (total, £136,582,000) were as follows in 1910-11: Great Britain, 61.1 per cent. of the imports and 24.9 per cent. of the exports; China (including Hongkong), 1.9 and 9.3; Germany, 4.0 and 9.0; United States, 2.7 and 6.5; France, 1.6 and 7.6; Belgium, 4.5 and 5.3; Japan, 2.6 and 6.3; Straits Settlements, 2.3 and 3.7; Austria-Hungary, 2.5 and 3.4; Java, 6.9 and 0.8; Ceylon, 0.6 and 3.9; Italy, 1.2 and 3.8; other countries, 8.1 and 15.5.

SHIPPING. In 1909-10 the number of vessels which entered and cleared at the ports in the foreign trade was 8042, of 14,597,091 tons; in 1910-11, 8435, of 14,984,528 tons. Of the tonnage about three-fifths is from or to Great Britain and British possessions, and about four-fifths is under the British flag. About 70 per cent. of the trade is with Calcutta and Bombay.

COMMUNICATIONS. The length of railways open to traffic December 31, 1910, was 32,100 miles, against 31,490 miles in 1909, and 24,752 in 1900. There were under construction or sanctioned 2676 miles. Of the mileage open, about 52 per cent. was standard gauge and about 42 per cent. meter gauge. Nearly all the railways are owned by the state and administered by the railway board, though many are leased to and operated by companies. Up to December 31, 1910, there was a capital outlay of £292,700,000 on the lines open to traffic. Net earnings in 1910, £15,990,000, or about 5.46 per cent. on the capital outlay (against 4.81 per cent. in 1909 and 4.33 in 1908). The net gain to the state from the railways was £2,866,000 in 1910, against a loss of £959,000 in 1909, after charging to expenditure interest on capital outlay of lines under construction.

Railway construction in India was making satisfactory progress during the year 1911, and

the following summary, made by *The Engineer*, of an official report, dated May, 1911, shows the construction under way: Railways in the hands of the state: (1) Eastern Bengal, comprising the Ganges bridge and connecting lines and another line of 24 miles; (2) North-western, six lines, covering 392 miles; and (3) Oudh and Rohilkhand, two lines, 175 miles. These represent a mileage of 591 miles and an estimated expenditure of about £5,056,930. The lines in the hands of companies are much more extensive, and aggregate 1871 miles, at an estimated expenditure of £10,195,000. Nearly one-half of the combined expenditure had been incurred at the date of the report. The new lines expected to be undertaken during the year, March, 1911, to March, 1912, on which some expenditure had been incurred, consisted of six, aggregating 279 miles, by the state, and eleven, amounting to 306 miles, by the companies. The grand total amounts to 3047 miles at an expenditure of £18,203,700.

Length of telegraph wire, March 31, 1910, 283,374 miles; capital cost to that date, £7,265,000. Messages in 1909-10, 12,085,000, showing a deficit of £11,691. The post office in 1909-10 conveyed 920,000,000 letters, post cards, newspapers, etc., and issued 24,000,000 money orders; net loss to government, £353.

FINANCE. The standard coin is the British sovereign, worth \$4.8665, but the current coin is the rupee, valued at 32.44½ cents (15 rupees to the pound sterling). For British India, the gross revenue and the expenditure charged against revenue, in thousands of pounds of sterling, were as follows in years ended March 31 (revised estimate for 1911):

	1900	1908	1909	1910	1911
Rev.	59,474	71,003	69,762	74,593	80,327
Exp.	56,701	70,697	73,499	73,987	76,936

In addition to the above expenditure, there is a capital outlay, not charged against revenue. This in the fiscal year 1909 amounted to £9,488,168 for railways and £983,489 for irrigation; in 1910, £6,322,000 and £1,052,000.

The principal receipts in the fiscal years 1908, 1909, and 1910, with revised estimates for 1911, were as follows, in thousands of pounds sterling:

Receipts	1908	1909	1910	1911
Land	18,719	19,769	21,332	20,955
Opium	5,245	5,885	5,535	7,528
Salt	3,339	3,276	3,320	3,196
Stamps	4,260	4,344	4,548	4,821
Excise	6,227	6,390	6,538	6,980
Customs	5,004	4,832	4,965	5,543
Income tax	1,504	1,563	1,559	1,576
Provincial rates	526	534	539	549
Forest	1,733	1,701	1,736	1,827
Registration	415	431	430	425
Tribute from Native States	585	590	588	608
Total	47,557	49,295	51,090	55,008
Interest	966	987	1,184	1,419
Post Office	1,824	1,826	1,927	2,005
Telegraphs	1,007	978	903	998
Civil depts.	1,098	1,146	1,146	1,209
Military depts.	1,167	1,047	1,137	1,174
Irrigation	2,440	2,467	2,543	2,534
Railways (net)	12,499	9,968	12,445	13,686

Grand total, incl.
other 71,003 69,762 74,593 80,327

Principal expenditures, in thousands of pounds (for fiscal year 1911, revised estimates):

Expenditures	1908	1909	1910	1911
Direct demands*.....	8,837	8,742	8,860	8,923
Interest	1,821	1,967	2,115	2,212
Post Office	1,773	1,897	1,928	1,955
Telegraphs	1,084	1,028	992	1,034
Civil depts.:				
Gen. adm'tration....	1,622	1,695	1,656	1,771
Justice	3,449	3,687	3,610	3,731
Police	3,813	4,196	4,222	4,340
Education	1,489	1,682	1,705	1,851
Medical	857	1,018	968	1,012
Total, incl. other....	13,098	14,489	14,186	14,998
Superannuation	3,009	3,058	3,094	3,157
Famine relief and insurance	1,296	1,645	1,000	1,000
Ry. rev. account.....	10,936	11,200	11,620	11,851
Irrigation	2,834	2,949	3,064	3,148
Army and naval services	20,415	20,651	20,249	20,523
Total, incl. other....	70,697	73,499	73,987	76,936

* Direct demands on the revenue; these consist of refunds and drawbacks, assignments and compensations, and collection charges, including production costs in the salt and opium monopolies.

It should be pointed out that the working expenses of railways are treated, not as expenditure, but as a deduction from revenue. Total net revenue and expenditure (in which, as in the case of the railways just mentioned, specific receipts that are properly offsets against expenditure are deducted) have been as follows, in thousands of pounds (revised estimate for fiscal year 1911):

	1900	1908	1909	1910	1911
Net rev.....	39,767	47,006	45,700	49,620	54,864
Net exp.....	36,993	46,700	49,438	49,013	51,473
Surplus	2,774	306	3,738	607	3,390

On March 31, 1911, the interest-bearing debt amounted to £275,064,000 (against £267,200,387 a year before); the sterling debt (raised in England) was £182,998,000, and the rupee debt (raised in India), 1,38,09,90,000 rupees, or £92,086,000.

ARMY. The Indian army is organized on divisional lines similar to the British army, and the plan involves the mobilization ready for service of 9 infantry divisions and 8 cavalry brigades, with adequate supply and transport facilities and staff organization. This would total 180,000 men. The aggregate strength of the military forces in India in 1911 was estimated at 352,784 men, made up of British regular forces, Indian regular forces, British volunteers, imperial service troops, local corps, and the military police, under civil control. The establishment of the British regiments in India in 1911-12 was 75,884, the representation of arms of the service and units being virtually the same as in the previous year—nine regiments of cavalry, 11 horse batteries, 42 field batteries, 3 howitzer batteries, 8 mountain batteries, 21 garrison artillery companies, 6 heavy batteries, 21 ammunition columns, 52 battalions of infantry, and details of royal engineers, royal army medical corps, etc. In the reorganization of the Indian army much attention was being paid to the strategical location of the troops in larger garrisons, and upon lines of railway communication, as well as on the armament of the artillery with weapons of modern type,

and the development of ordnance and other facilities. Thus in the estimates of 1911-12 the sum of £100,000 was presented for the rearmament of the mountain batteries, and £75,000 for the purchase of rifles. The Indian regular forces, or native army, had a strength of about 162,000 in 1911, and consisted of 3 regiments of body guards, 39 regiments of cavalry, and the Aden troops, 1 corps of guides, 12 mountain batteries, 1 frontier garrison company, 26 companies of sappers and miners, 117 infantry battalions, and 20 battalions of Gurkhas. During 1911 the chief questions under consideration were the reduction of the expense of the Indian army establishment by suitable economies, and the improvement of the organization to higher standards of efficiency.

GOVERNMENT. The king of Great Britain and Ireland is emperor of India, by act of Parliament of 1876. King George V. was crowned emperor of India at Delhi December 12, 1911. In England, the administration of Indian affairs is intrusted to the secretary of state for India (a member of the British cabinet), who is assisted by a council. The expenditure of Indian revenues is determined by the secretary of state in council. In respect of the relations of the Indian government to foreign powers or to the Native States, in making peace and war, and in matters requiring secrecy, the secretary of state may act independently of the council. In November, 1910, Viscount Morley of Blackburn, secretary of state for India, resigned and was succeeded by the Earl (now Marquis) of Crewe, who continued to hold the position throughout 1911. In India the chief executive power resides in the "government of India," that is, the governor-general in council. The governor-general (appointed by the crown for five years) in 1911 was Baron Hardinge of Penshurst, who succeeded the Earl of Minto in 1910. The council consists of six members, appointed by the crown, and of the commander-in-chief of the army in India. There are ten departments of government. In accordance with the Indian Councils act of 1909, the governor-general's legislative council consists of 28 official and 32 non-official members (including 25 elected), in addition to ex-officio members. There are similar legislative councils in the presidencies of Madras and Bombay and in the following provinces: Bengal, Eastern Bengal and Assam, the United Provinces of Agra and Oudh, the Punjab, and Burma. By the act of 1909, these councils, both viceregal and provincial, were enlarged, their powers increased, and the elective element extended. In 1911, British India consisted of 13 local governments and administrations. In the presidencies of Bombay and Madras, the executive authority is vested in a governor; in each of the above-named provinces, in a lieutenant-governor; and in a chief commissioner in each of the remaining divisions—the Central Provinces and Berar, Ajmer-Merwara, Coorg, British Baluchistan, the North-Western Frontier Province, and the Andaman (and Nicobar) islands.

The Native States are governed by their princes, ministers, or councils, but the government of India, through British residents or agents, exercises varying degrees of control and does not permit the States to maintain external political relations.



Photograph by Paul Thompson, N. Y.

THE DURBAR AT DELHI
THE PAVILION IN WHICH THEIR MAJESTIES WERE CROWNED

HISTORY

NATIVE AGITATION. Although the signs of native discontent under British rule were plentiful in 1911, they were on the whole less violent and widespread than in the years preceding. The Seditious Meetings act passed in 1907 expired in 1911, but its chief provisions were reenacted as a permanent law. The new law reserved to the government the right to proclaim disturbed regions and vested the district magistrate, instead of the police, with the authority to grant permission to hold meetings. The case of Savarkar continued to draw public attention. As ringleader of the so-called "Nasik conspiracy" he had been sentenced in 1911 to transportation for life, but owing to his temporary escape from a steamship at Marseilles an international question was raised and referred to the Hague Tribunal, and execution was deferred pending the Hague decision. In January a further charge was brought against him of having sent to Bombay a pistol which was subsequently given to the assassin who murdered Mr. Jackson. The Hague court rendered its award on February 24, in favor of the British contention, namely, that despite the escape and recapture on French soil, it was not a matter for French jurisdiction. The Bengal conspiracy case, pending since the summer of 1910, in which forty-two persons, under the leadership of Pulin Behari Das, were accused of inciting to revolt against the imperial government, resulted in June, 1911, in a verdict of not guilty. This verdict, rendered by the native assessors of the special tribunal of the Calcutta High Court, was, however, set aside in August by the extra sessions judge at Dacca, who sentenced one of the accused to transportation for life, seventeen to ten years' imprisonment, and one to three years' imprisonment. Rioting was reported at Bombay in January, and in the Khulna district in May. A number of outrages and sensational trials of political malcontents occurred in the spring. Early in April nine young men were found guilty of an attempt to murder Colonel Ferris, a former political agent in Kolhapur, and two other officials. A case of political dacoity on March 31 led to the arrest of a member of one of the high castes. This was one of many instances of dacoity which appeared to be the result of predetermined purpose and considerable organization. In the same month explosives were found indicating anarchistic intentions, and a passenger train was thrown off the track near Dinapur as the result of the intentional removal of one of the rails. On June 17, Mr. R. W. Ashe, a Madras collector, was shot and killed by a Brahman attorney. In July two native policemen who had given evidence in political cases were murdered by a gang. In October an unsuccessful attempt was made to wreck the Darjeeling mail train.

BORDER DISTURBANCES. At the end of February the chief commissioner of the North-West Frontier Province, learning that raiders had gathered under the notorious outlaw, Hakim Khan, near Abazai, attacked them with an escort of some 250 men, killing twenty-two and capturing seven. In March, there were reports of fighting on the Afghan border with the Mahsud tribesmen, who were about to make a raid. Several soldiers of the South Waziristan

Militia were killed and wounded. The most serious disturbance took place on the north-eastern frontier, where Mr. Noel Williamson, assistant political officer at Sadiya, who was leading a small party on a friendly mission, was treacherously attacked and killed by Abors. The government authorized a punitive expedition, which set out in October under Maj.-Gen. Hamilton Bower, 2000 strong, and by the first week of December was reported to have captured one of the Abor strongholds after some sharp fighting in which several were killed on each side. The disaffected region lay to the north of the Brahmaputra River in the neighborhood of Pasighat. A friendly expedition to the Mismi was planned at the same time. The traffic in arms continued to give trouble on the northwest frontier and led to renewed measures to check the gun-running in the Persian Gulf. An expedition of 1000 men, under Admiral Slade, started from Bombay early in April, and made two raids in Persian Mekran, returning to India on May 8.

THE CORONATION DURBAR. On December 2 King George and Queen Mary, emperor and empress of India, paid the first visit ever rendered by a British sovereign with his consort to the Indian empire. The great coronation Durbar was celebrated with elaborate ceremonies at Delhi on December 12. Over 100,000 of the Indian subjects were reported to be present and nearly 150 of the native princes. On this occasion the king-emperor made the following announcement: "We are pleased to announce to our people that on the advice of our ministers, tendered after consultation with our governor-general in council, we have decided upon the transfer of the seat of the government of India from Calcutta to the ancient capital, Delhi, and, simultaneously and as a consequence of that transfer, the creation, at as early a date as possible, of a governorship for the presidency of Bengal, of a new lieutenant-governorship in council administering the areas of Behar, Chota Nagpur, and Orissa, and of a chief commissionership of Assam, with such administrative changes and redistribution of boundaries as our governor-general in council with the approval of our secretary of state for India in council may in due course determine. It is our earnest desire that these changes may conduce to the better administration of India and the greater prosperity and happiness of our beloved people."

The change of the capital to Delhi, as well as the other terms of the proclamation, caused considerable surprise and some criticism in certain quarters, but in general was received with favor.

OTHER EVENTS. One of the first acts under Lord Hardinge's administration was the passage by the viceroy's Legislative Council on January 3 of a resolution forbidding the emigration of indentured Indians to Natal after July 1. For the subject of Indian immigration into South Africa, see *SOUTH AFRICA, UNION OF, History*. An important factory act was passed in March fixing the hours of daily labor in the textile industries at twelve for adults and six for children. The constitution of the new native state of Benares, created by Lord Minto in December, 1910, was formally proclaimed on April 1. Sir Edward Baker resigned the office of lieutenant-governor of Bengal in October. An important educational movement took form in 1911 on behalf of the Europeans and Eurasians. A dele-

gation representing the Protestant communions in India visited England in April and a committee, consisting of the heads of English Protestant churches and distinguished retired Indian officers, was formed to promote the cause. The Mohammedans, at the instance of the Aga Khan, also set on foot a movement to make the Anglo-Oriental College at Aligarh a Moslem university in honor of the durbar. A plan was also under way for a Hindu university at Benares.

INDIA, PORTUGUESE. See PORTUGUESE INDIA.

INDIANA. See CHILD LABOR, and ARBITRATION AND CONCILIATION, INDUSTRIAL.

INDIANA. POPULATION. The Thirteenth Census, taken in 1910, showed a population of 2,700,876, as compared with 2,516,462 in 1900, a gain of 7.3 per cent. in the decade. The principal cities, with their populations in 1910 and 1900, are as follows (the figures in parentheses are for 1910): Indianapolis, 233,650 (169,164); Evansville, 69,647 (59,007); Fort Wayne, 63,933 (45,115); South Bend, 53,684 (35,999); Terre Haute, 50,157 (36,673).

AGRICULTURE. The Thirteenth Census included statistics of agriculture, dated April 15, 1910. At that date the total number of farms in the State was 215,485, as compared with 221,897 in 1900, a decrease of 6412. The land in farms was 21,299,823 acres. The improved land in farms was 16,931,252 acres. These figures show no material change from those of 1900. The total value of farm property, including lands, buildings, implements, and machinery, domestic animals, poultry, and bees, was \$1,809,135,238, as compared with a value of \$978,616,471 in 1900. The average value of all property per farm was \$8396, as compared with a value of \$4410 in 1900. The average value of land per acre was \$62.36, as compared with \$31.81 in 1900. Of the 215,485 farms in the State, 150,798 are operated by owners and managers and 64,687 by tenants. Of the farms operated by owners, those free from mortgage numbered 89,847; those under mortgage, 56,914. Of those operating and managing farms, 204,951 were native whites; 9729 foreign born whites, and 805 negroes, and other non-whites. The value of the various kinds of domestic animals, poultry, and bees in the State in 1910 was \$173,860,101, as compared with a value in 1900 of \$109,550,761. The cattle numbered 1,363,016, valued at \$39,110,492; horses and colts, 813,644, valued at \$87,118,468; mules, 82,168, valued at \$9,678,014; swine, 3,613,906, valued at \$23,739,586; sheep and lambs, 1,336,967, valued at \$5,908,496. The various kinds of poultry numbered 13,789,119, valued at \$7,762,015. The acreage, production, and value of the various crops in 1910 and 1911 are shown in the table below:

	Acreage	Prod., bu.	Value
Corn .....1911	4,850,000	174,600,000	\$94,284,000
1910	4,800,000	188,640,000	75,456,000
Wheat .....1911	2,337,000	34,354,000	30,575,000
1910	2,256,000	35,194,000	30,619,000
Oats .....1911	1,640,000	47,068,000	20,239,000
1910	1,680,000	59,472,000	18,436,000
Rye .....1911	73,000	1,000,000	800,000
1910	80,000	1,264,000	860,000
Potatoes ..1911	89,000	5,162,000	4,491,000
1910	97,000	8,148,000	4,074,000
Hay .....1911	1,848,000	1,737,000	29,182,000
1910	2,100,000	2,730,000	32,487,000
Tobacco ..1911	22,000	620,020,000	1,561,000
1910	30,000	26,400,000	2,508,000

a Tons. b Pounds.

MINERAL PRODUCTION. The total mineral production of the State in 1910 was valued at \$59,039,303. Of this the coal produced was valued at \$20,813,659; clay products, \$8,100,010; Portland cement, \$6,487,508. Stone was produced to the value of \$4,476,382. Other mineral products of the State include lime, and petroleum, of which 2,159,725 barrels were produced in 1910, and sandlime brick.

The production of coal in the State in 1910 was 18,389,815 short tons, valued at \$20,813,659, a gain of 3,565,556 tons in quantity and \$5,658,978 in value over the figures of 1909. While some of the coal miners of the State suspended work in 1910 in sympathy with the strike in Illinois and in the Southwestern States, the idleness in Indiana was not general, nor was it so prolonged as in the other States affected. Of the total number of men employed in the coal mines of the State only about 60 per cent. stopped work at the call of the strike and these remained idle for an average of but thirty-four days. Of the total production of coal in 1910, 8,896,495 short tons, or nearly 50 per cent., were mined by machines. There were employed 21,878 men. The average production per man was the greatest in any of the coal-producing States, 841 tons for each employee for the year. See COAL.

EDUCATION. The enumeration made in 1911 showed a school population of 750,185, of whom 284,406 were white males, 358,161 white females, 7836 colored males, 7882 colored females. The total enrollment for the year was 530,267, and the average daily attendance was 416,776. The average daily attendance shows a decrease from the preceding year, when it was 420,780. The decrease is attributed in part to epidemics of various diseases that prevailed during the year.

CHARITIES AND CORRECTION. The charitable and correctional institutions supported by the State are 17 in number. On September 30, 1911, they had 11,000 inmates. In 1911 the maintenance expense of these institutions amounted to \$2,133,977.53; new buildings and permanent improvements, \$285,932.50. Grand total, \$2,419,910.03.

With the exception of the tuberculosis hospital, which was opened at Rockville in 1911, and which operates under a slightly different law, each institution is managed by a board of four trustees appointed by the governor, not more than two of whom must be of the same political affiliation or belief. Each board appoints its superintendent, who in turn appoints all officers and employees. The law specifies that no other qualification except fitness must be taken into consideration in the making of any appointment and the trustees are forbidden to interfere in any way with the selection or discharge of employees. Campaign assessments are illegal. Supplies are bought on competitive bids.

The State prison, reformatory, and woman's prison since 1897 have operated under the indeterminate sentence and parole laws. The three institutions have paroled 6291 of their inmates. Of this number only 26.05 per cent. are known to have violated their parole. The woman's prison has a correctional department for the incarceration of women misdemeanants who prior to 1907 served their sentences in the county jails. This department of the prison in 1911 had an average attendance of 60.90.

All of the institutions are under the supervision of the Board of State Charities, a non-

partisan, unsalaried body having offices at the State House. This is a supervisory board. It inspects, suggests, advises, and reports, but has not and does not desire power to enforce its recommendations. It supervises not only the State institutions but all public charities and corrections, both county and township, and is also charged with the duty of licensing maternity hospitals and all agencies or institutions having to do with children. Through an agency created for the purpose, it supervises all work for dependent children made public wards.

POLITICS AND GOVERNMENT

The legislature met in 1911 and the most important measures are noted in the paragraph *Legislation* below. On January 17, John W. Kern (q. v.) was elected United States senator to succeed Albert J. Beveridge. The election of Mr. Kern was the result of the success of the Democrats in electing members of the legislature in the elections of November, 1910. Mr. Kern received the entire vote of his party in the two houses and the full Republican vote was cast for Senator Beveridge. In January the legislature repealed the county local option law, substituting the township or ward as the unit of option, and on February 26, the first election was held in forty cities and townships under the new law. As a result of this election, three cities, Martinsville, Connersville, and Wabash, changed from "dry" to "wet," and Crawfordsville, Tipton, Frankfort, Mitchell, and Bedford voted "dry." In the State there are at the present time twenty-four no-license counties and twenty-one no-license cities.

The legislature refused to pass the recall bill, which was aimed especially at Mayor Shank of Indianapolis. The bill was defeated in the Senate on February 13 by a vote of 23 to 17. Mayor Shank acquired during the latter part of the year a national celebrity as the result of his purchasing and selling large quantities of farm and garden products at public sale at a price a little more than the cost. This was the result of alleged attempts on the part of dealers in these products in Indianapolis to control prices.

In connection with the presidential campaign of 1912, E. F. Lee, chairman of the State committee, made the assertion at the meeting of this committee in Washington on December 12 that Mr. Taft could not carry the State. This assertion was made in a formal statement issued at the close of the meeting. Mr. Lee was formerly regarded as a Beveridge representative. His assertion was contradicted by Harry S. New, who was elected committeeman from Indiana at this meeting. This State promises to be one of the most hotly contested battlefields in the presidential election of 1912.

The Democrats decided to present the name of Thomas R. Marshall for the presidency. Senator Kern was also urged as an available man, though he steadfastly declares for Marshall.

Indianapolis, as the headquarters of the International Association of Bridge and Structural Iron Workers, was one of the news centres in the development of the McNamara dynamiting cases. Judge Anderson of the federal court sent officers after the records of the union and took them out of the hands of the local courts which had refused to deliver them to the Los Angeles authorities. The McNamaras, in California,

pleaded guilty soon after these records were turned over to the federal grand jury. See CALIFORNIA.

LEGISLATION. At the legislative session of 1911 an unusually large number of statutes regulating railroads were passed. This legislation, however, contained nothing especially new. A measure regulating child labor was passed. This prohibits the employment of any children under fourteen years of age in other than farm work or domestic service, and contains many provisions as to the hours and occupations of children between fourteen and eighteen years of age. A stringent employers' liability act was passed. This practically makes the employer responsible for every accident to the employee. (See **EMPLOYERS' LIABILITY**.) The conduct of dangerous occupations so as to minimize and prevent accidents was regulated, and provision was made for the safety of persons employed in coal mines. Miners' examining boards were created and provision was made for the examination of persons seeking employment in coal mines, with the definition of those who are competent to work in mines. The laws relating to public utility franchises were amended and a comprehensive law on the subject of corrupt practices was passed. Of laws affecting education, the most notable were those providing for the prevention of infant blindness, the establishment of public playgrounds, medical inspection of school children, a minimum wage for school teachers, and night schools in cities of 3000 or more. Several important statutes were enacted relative to pure food. One of these forbids druggists to sell dangerous drugs except upon the written prescription of a physician. Another regulates the holding and sale of products in cold storage and refrigerating warehouses. Still others regulate the sale of milk and butter. Provision is made for the prevention of hydrophobia. The tax laws of the State were amended in regard to the taxation of telegraph, telephone, railroad, and other corporations. It is made a misdemeanor, subject to a fine of from \$100 to \$500, and imprisonment for not less than one year nor more than fourteen years, to procure the naturalization of an alien. Non-resident persons desiring to hunt or fish in the State are required to obtain a license.

STATE OFFICERS. Governor, Thomas R. Marshall; Lieutenant-Governor, Frank J. Hall; Secretary of State, L. G. Ellingham; Treasurer, William H. Vollmer; Auditor, William H. O'Brien; Attorney-General, Thomas M. Honan; Adjutant-General, George W. McCay; Superintendent of Education, Charles A. Greathouse—all Democrats.

JUDICIARY. Supreme Court: Chief justice, Quincy A. Meyers; justices, John V. Hadley, James H. Jordan, Leander J. Monks, Oscar H. Montgomery; clerk of the court, Edward V. Fitzpatrick—all Republicans.

STATE LEGISLATURE, 1911. Republicans, Senate, 20; House, 40; joint ballot, 60. Democrats, Senate, 30; House, 60; joint ballot, 90. Democratic majority, Senate, 10; House, 20; joint ballot, 30.

The representation in Congress will be found the article **UNITED STATES, Congress**.

INDIANAPOLIS. See **MUNICIPAL OWNERSHIP**.

INDIAN EDUCATION. See **INDIANS**

INDIAN LANDS, SALE OF LIQUOR IN. See MINNESOTA.

INDIANS. The activity of the Bureau of Indian Affairs, as in past years, has been directed towards two main ends—the improvement of the Indian's health and his education along the line of self-supporting activity. In view of the latter aim the number of Indians receiving rations has been reduced to about 21,000. The number of expert farmers to instruct the Indians has been materially increased, and still larger additions to this teaching force are planned. Although there was a partial failure of crops from drought, there was on the whole notable progress throughout the service. In the Yakima reservation fifty-six Indians raised 23,000 bushels of grain, while others successfully raised alfalfa. Among the Nebraska Winnebago the value of crops was estimated at \$90,000. In twenty-two Western reservations demonstration farms have been established for the benefit of the Indians, and in a number of cases the State authorities have coöperated with the department in its teaching activity. Stock raising does not progress as to quantity of stock, but the grade seems to be almost everywhere improving. Besides, it must be noted that in some cases the same adverse conditions affect the white stock raisers; for example, while the Blackfoot lost 15 per cent. of their herds last winter, still larger losses were sustained by their white neighbors. The employment bureau designed to secure labor for Indians away from reservations and on the same conditions as white persons continues its efforts with excellent results. Thus, in the district comprising Arizona and New Mexico, the total earnings of the Indians looked after by the bureau exceeded \$260,000. For the education of children, the department still maintains 223 day schools, 79 boarding schools on reservations, and 35 non-reservation boarding schools. The total enrollment for the year was 24,500. In some regions, such as Oklahoma, conditions are favorable to the attendance of ordinary public schools by the Indian children, as race prejudice is practically absent and the State constitution grants the same educational privileges to Indians and whites.

Independently of the department, there was founded an "American-Indian Association," which held its first meeting in Columbus, Ohio, Oct. 12-15, 1911. The organization is to bring together all progressive Indians for the purpose of promoting the adaptation of the race to modern civilized conditions. See ALASKA.

INDIGO, ARTIFICIAL. See CHEMISTRY, INDUSTRIAL.

INDO-CHINA, FRENCH. See FRENCH INDO-CHINA.

INDUCTION MOTOR. See NAVAL PROGRESS.

INDUSTRIAL RELATIONS, FEDERAL COMMISSION ON. See TRADE UNIONS.

INDUSTRIES, ELECTRICAL. See ELECTRICAL INDUSTRIES.

INFANTILE SPINAL PARALYSIS (ANTERIOR POLIOMYELITIS). A full report of the situation in the United States with regard to this disease was made by a special committee appointed by the American Medical Association. This report declares that there can be no doubt but that anterior poliomyelitis has greatly increased during recent years in this country. During the year 1909 about 2500 cases were reported as occurring in epidemics. Dur-

ing that year 539 deaths, indicating probably not less than 500 cases, were reported from the registration area, comprising 55 per cent. of the population of the United States. In 1910, 5093 cases and 825 deaths were reported. A great deal of experimental work was done to determine the methods by which the disease spreads. The successful transmission of poliomyelitis from man to monkey and from monkey to monkey showed the disease to be due to a specific virus. Several observers reported finding minute bodies in the filtrate from emulsions of the spinal cord of infected monkeys. Other bodies were found by the Pennsylvania health authorities in the blood of infected persons and monkeys, but it was not established that any one of these bodies is the causative organism. The virus of poliomyelitis has been shown to be present in the spinal cord and bulb, and possibly in the spleen, blood, and cerebrospinal fluid of human beings who have died during the acute stages of the disease. Among the lower animals the virus has been found in the brain, spinal cord, lymphatic glands, and in the nasal and pharyngeal mucous membrane of monkeys experimentally infected with the virus. The monkey appears to be the only one of the lower animals susceptible to the disease. Guinea pigs, rats, mice, dogs, cats, sheep, goats, hogs, horses, chickens, and pigeons have so far been found resistant to experimental infection. The virus has never been found outside the animal body. Its demonstration in the nasal pharyngeal mucous membrane and salivary glands of experimentally infected monkeys has led to the inference that the nasal and buccal secretions contain the virus, but it has been found impossible to prove this. It is believed that the virus has no natural animal host except man, and that its existence outside of the human body is short. Investigations so far indicate that transmission is direct from person to person, although Neustaedter and Thro conducted a number of experiments with monkeys which apparently prove that poliomyelitis may be propagated by dust. These observers collected the sweepings of the rooms where cases of poliomyelitis had occurred. These sweepings were taken from rooms where the children were playing and sleeping and were dried for days, then sifted and macerated in normal salt solution and finally filtered through paper and a Berkefeld filter. This filtrate was injected into monkeys, with the result that the animals became ill with the disease and showed the characteristic paralysis. These investigators are satisfied that the germ of poliomyelitis may be carried by dust, that the naso-pharynx is probably the point of entry, and that acute poliomyelitis is both infectious and contagious. No method of treatment has been discovered which will abort or cut short the disease or prevent subsequent paralysis. The possibility of controlling virus in the body was investigated by Flexner and Clark, of the Rockefeller Institute. They found that when hexamethylenamine was given in doses so large that it circulated in the spinal fluid of a monkey, paralysis was prevented in the animal into which the virus was afterward injected. These experiments do not prove that the drug will control an already established infection, but its use by clinicians has shown that it has a practical value. Taking advantage of the fact, reported by several observers, that the serum of persons who have recovered from an attack

of poliomyelitis will neutralize the virus of the disease so that when injected into monkeys infection will not take place. Anderson and Frost studied the serum from nine suspected abortive cases of poliomyelitis without paralysis and found that the serum of six of the nine possessed the same germicidal action against the virus as the serum from a frank case of the disease with extensive paralysis. Their observations point toward the possibility of developing a serum which will protect persons exposed to poliomyelitis in the same way that diphtheria antitoxin gives immunity. See INSECTS AND THE PROPAGATION OF DISEASE.

INFANTRY. See MILITARY PROGRESS.

INHERITANCE TAX, GOVERNMENT. See TAXATION.

INITIATIVE AND REFERENDUM. See ELECTORAL REFORM.

INJUNCTION. See BOYCOTT; LABOR, AMERICAN FEDERATION OF.

INNESS GOLD MEDAL. See PAINTING.

INSANE, CARE OF THE. See INSANITY.

INSANITY. The Iowa Board of Control of State Institutions reported on June 30, 1910, 4143 insane in the four State Hospitals, 865 in county houses, and 599 in the five private hospitals, making a total of 5607 patients, 3018 men and 2589 women. This is an increase over 1908 of 132.

Dr. Copp, secretary of the Massachusetts State Board of Insanity, reported on September 30, 1910, a total of 11,979 patients under care in the public institutions, 5961 male and 6018 female lunatics; besides 14 men and 261 women under family care, total, 275; as well as 110 men and 210 women, total, 320, in private institutions; making a grand total of 6085 men and 6489 women, or 12,574 in all. These figures show an increase of 522 over last year, against 508 increase for the previous year. A special colony for the teachable insane has been established at Gardner. The curable cases reached 22.42 per cent. of the number of first admissions during the year. Of the first admissions, 44.88 were of foreign birth. The number boarded out with families reached 275, or 34 more than last year. Voluntary admissions constituted 9.74 per cent. of all, and 43.5 per cent. of the admissions into McLean Hospital, a semi-private establishment, with a population of 216. Of the 3254 admissions, 2852 were first cases. Alcohol was reported to be the causative factor in 22.15 per cent. of the cases. Next to alcohol in the causation comes heredity, in 19.09 per cent.; coarse brain lesions in 7.51 per cent.; and syphilis in 3.91 per cent. There is one insane person to every 268 of the population of the State.

The Minnesota State Board of Control gave 2824 men and 2037 women, total, 4861 insane, as the number under care in its five public hospitals on August 1, 1910, against 4562 at the beginning of the last biennial period. The board recommends that the counties be obliged to pay at least one-half of the cost of maintenance of the patients, considering entire State care as undesirable. A detention hospital for observation of alleged insane has been opened in connection with the Fergus Falls and St. Peter State hospitals. Patients may now, without commitment, enter a State hospital on the certificate of three physicians. Voluntary admissions are also in use.

Dr. Dibrell, of the board of State Charitable Institutions of Arkansas, stated on January 1,

1911, that it is projected to erect a second hospital in that State for the insane. The present institution, called the Hospital for Nervous Diseases, houses 1124 patients. It is believed by Dibrell that there are 322 more insane in the State, and it is known that 57 insane people are in various jails.

On November 30, 1910, the Colorado State Board of Charities and Correction, through Dr. Grant, commissioner and secretary, reported 676 men and 455 women, total 1131 insane patients, in the State insane asylum, an increase for the year of 229.

Dr. Herring, secretary of the Maryland Commission in Lunacy, gave the figures for the fiscal year ending December 1, 1910, as follows: 890 men and 729 women, total 1619 insane patients in the public hospitals; while in addition there were 248 men and 382 women, total, 630, in Mount Hope; also 53 men and 63 women in St. Peter's; and others in various homes. A tract of 663 acres in Crownsville has been selected as a site for a hospital for the negro insane. The present commission continues its excellent work of taking the insane out of jails and poorhouses.

Dr. Ferris, president of the New York State Commission in Lunacy, reported the number of committed and voluntary insane, and committed insane in the licensed private houses as 16,010 men and 17,301 women, total, 33,311 patients, on September 30, 1911. Of this number, 1064 were inmates of Matteawan and Dannemora State hospitals for insane criminals. There were 783 patients on parole. The net increase for the year was 653, against 1119 for the previous year, and 1014 for two years ago. During the year, over 1100 insane were deported to other States and countries, as against 864 the previous year. This most valuable work of detecting, verifying, and preparing for deportation is done by a board of three alienists, Drs. G. B. Campbell, T. W. Salmon, and W. E. Sylvester, under the control of the commission. The total number admitted during the year was 7854, of which total 6265 were first admissions and 1589 were readmissions. Of the admissions 37 were discharged as mere inebriates, 8 as drug cases, and 84 as not insane under the statute. Of all patients in the State hospitals, 29,770 were supported by the State, while 2246 paid the bare cost of maintenance or a part of it, and 234 were rated as of the private class. From the 14 civil hospitals, 1697 were discharged recovered, 476 as much improved, and 2886 died during the year. The voluntary provision of the law was invoked in the cases of 305 persons only, owing to the apathy of physicians in general practice to its benefits, this figure omitting those received as voluntary patients into the licensed private houses. One additional private house was licensed during the year, bringing the total of this class of institutions up to twenty-three. The amount disbursed for maintenance for the year was \$6,023,065.69. Upon new buildings, extraordinary repairs or equipment, or emergencies was expended the sum of \$1,114,336.87. The annual per capita for maintenance (omitting any calculation for the value of lodging) was \$199.664, as against \$189.14 in 1910; owing to the fact that many expenditures were taken out of maintenance which were properly chargeable as before to extraordinary equipment or emergencies. Calculated on previous years' bases the per

capita was \$187. The percentage of recoveries was 23.4, calculated on the admissions for the year. The rate of insane to population is 1 to 281 of the population of the state.

Alcohol still remains the chief avoidable cause of insanity in this State, furnishing, as the determining factor, 30 per cent. of the male cases, and about 8 per cent. of the female cases. Syphilis furnishes about 15 per cent. of all cases. The overcrowding continues, amounting to about 2200 beds more than there is room for. No sufficient relief was in sight. Constructions under way would relieve the conditions by 1200 beds, but when ready, the increase was expected to reach about the same figures. Work on the plans and development of the Yorktown tract were delayed most of the year, by reason of special investigation. The final construction was to be planned for 3000 patients, because of the rapid increase of possible curable cases from New York City The Psychiatric Institute, connected with the medical work of all the hospitals, didactic, pathological, and corrective, pursued its activities, its staff being under Director August Hoch, M. D., as in 1910, and the various interhospital conferences were held about the State. The statistician continued his labors, and a most instructive statistical volume was published as a supplement to their report by the commissioners. Commissioner Ferris lectured on prevention of insanity at various places, and edited the quarterly State Hospital Bulletin, as heretofore. See NEW YORK.

The commissioners for England and Wales reported on January 1, 1911, that the number of notified insane at that date was 133,157, against 130,553, showing an increase of 2604. The average increase of known cases has been 2521 for the past ten years. The number in receipt of relief and living with friends is decreased by 181, owing to the Old-Age Pension act. The yearly total number was distributed as follows: 4709 male and 6181 female, or 10,890 private patients; 56,142 male and 65,030 female, or 121,172 paupers; 833 male and 263 female, or 1095 criminals. The insane have increased less steadily than the population. There is one insane person to every 275 of the population. There were 7501 discharged as recovered, 2323 as unrecovered (10.6 per cent. of the total admissions), and 9777 deaths. Of those admitted, 82.1 per cent were first admissions. The recovery rate was 34.31 per cent. based on total admissions. Of the causes, prolonged mental stress was assigned in 9.6 per cent.; heredity in 19 per cent. of the males and 23 per cent. of the females; alcohol in 22.1 per cent. of the males, and 8.7 per cent. of the females. But it was asserted that with other causes alcohol was operative in many more instances, prominent among the conditions referred to being syphilis, privation, traumatism, the climacteric, and epilepsy. Sudden stress operated in 2.2 per cent., largely in women.

The commissioners for Scotland reported on January 1, 1911, a total of 18,636 insane patients in that country, in increase of 299 over the previous year. The voluntary patients numbered 127, an increase of 34. As recovered, 42.5 per cent. of the private patients and 36.7 per cent. of the paupers were discharged, reckoned on the admissions. The deaths numbered 163 private and 1181

pauper patients, total 1344, a decrease of 31 over last year. The deaths of patients with general paresis numbered 183, an increase in the last five years, though a decrease in the last two.

The inspector of lunatics for Ireland reported January 1, 1911, 20,603 insane patients under care, 11,099 men and 9504 women, an increase of 333 over the preceding year. Of these, 2571 were in workhouses, 909 in private asylums, 143 in unlicensed houses as chancery patients. During 1910, 1307 were discharged recovered, constituting 36.5 per cent. of recoveries, calculated on admissions. The deaths numbered 1479. In Dundrum, the institution for criminals, there were 197 under care, 168 remaining, a decrease of 6. The voluntary boarders in private asylums totaled 22. The proportion of insane to population is 1 to 179.

INSECTS AND THE PROPAGATION OF DISEASE. Bruck succeeded in isolating the toxin which he calls culicin from the common mosquito. His method was to grind the mosquitoes, *Culex pipiens*, in a mortar with salt solution containing a little glycerine and to centrifugate. It was found that culicin contained hemolytic and a urticaria-producing principle. Bruck also found that mosquitoes would never bite a syphilitic lesion; they always avoided the morbid tissues and settled only on the sound tissue surrounding them. At the same time mosquitoes were able to take up spirochetes on their feet and thus transmit infection, so that the possibility of communicating the disease by this means must be recognized.

Flexner and Clark of the Rockefeller Institute showed by laboratory experiments that it is possible for the common house fly to carry the virus of epidemic poliomyelitis. (See INFANTILE SPINAL PARALYSIS.) They consider it possible that the disease is actually carried in this way. In their experiments flies were permitted to feed on laboratory material known to be infected with the virus. An extract was then made of the bodies of the flies. When this extract was injected into monkeys, it produced the characteristic lesions of anterior poliomyelitis. The house fly has received a good deal of attention from sanitarians of late, and the more it is studied the more loathsome and dangerous a neighbor does it appear. The whole subject is covered by Dr. L. O. Howard in his book, *The House Fly Disease Carrier; an Account of its Dangerous Activities and of the Means of Destroying it* (New York, 1911).

INSTITUTE OF AGRICULTURE, INTERNATIONAL. See AGRICULTURE.

INSTITUTE OF CHEMICAL ENGINEERS, AMERICAN. See CHEMISTRY, INDUSTRIAL.

INSURANCE. LIFE INSURANCE. STATISTICS. According to the report of the superintendent of insurance of the State of New York issued in August, there were eleven New York State companies doing life insurance business in that State in 1910, as compared with thirteen in 1909, fourteen in 1908, fifteen in 1907, and sixteen in 1906. This latter was the maximum number in thirty years. The number of policies in force was 3,226,542, an increase of about 7 per cent. over the preceding year. The amount of these policies was \$5,998,366,000. The gross assets of these companies was \$2,144,213,000. There were 22 companies with

headquarters in other States. They had 2,824,000 policies in force, an increase nearly 5 per cent. over 1909. The total amount of these policies was \$5,671,333,000; and the gross assets were \$1,549,034,000. The 33 companies doing business in New York (these companies doing more than 90 per cent. of all of the life insurance business of the country) thus had 6,050,000 policies in force amounting to \$11,669,700,000. The number of policies and their amount was figured on a "paid for basis," in both cases representing an increase over any preceding year. There were issued 51,906 more policies than in 1909. The gross income of 33 companies in 1910 was \$716,625,000, of which \$532,919,000 was derived from insurance. The total disbursements for the year were \$495,365,000, of which \$218,406,000 was paid for claims, \$72,219,000 for lapsed and surrendered policies, \$72,913,000 in dividends to policy holders, \$46,328,000 for commissions, and \$45,202,000 for salaries and medical examiners' fees. The net income over disbursements was \$221,287,000. The total number of policies issued was 747,028, insuring \$1,435,841,000. There were 425,288 policies terminated, insuring \$813,300,000. Of the insurance terminated \$136,633,000 was due to deaths, \$336,729,000 to 118,613 surrendered policies, \$276,197,000 to 177,392 lapsed policies, and smaller amounts to maturing of endowment policies, and to the expiration of term insurance. Policies in force were classified as follows: whole life, 3,796,030 policies, insuring \$7,664,709,323; endowment, 1,901,409 policies, insuring \$2,886,140,168; all others, including term and irregular, 353,178 policies, insuring \$1,036,411,379.

There were four companies writing industrial insurance, namely, the Metropolitan, Prudential, John Hancock, and Colonial. In 1910 they had in force 21,520,953 policies, insuring \$2,997,815,000. Of these 10,465,074 policies and \$1,512,599,000 insurance were credited to the Metropolitan, and 8,957,170 policies with \$1,143,352,000 to the Prudential.

MORTGAGE LOANS. The enactment of a law forbidding insurance companies to hold the stock of other corporations brought about a considerable change in their investments. The leading New York companies have gradually increased their investments in real estate mortgages. Thus in 1906 the New York Life Insurance Company had only \$25,000,000 invested in mortgages. In 1911 this form of investment reached \$110,000,000. Such loans are made only on improved and unincumbered property. The total investments of the 33 companies doing business in New York State in 1910 in real estate bonds and mortgages was \$1,126,003,000. The larger companies, moreover, have been distributing their investments over a considerable number of States, although slightly more than 40 per cent. of the total loans have been made on New York City property. This form of investment is so eminently suited to insurance companies that some attention was directed during the year to the possibility of securing the aid of insurance company funds to develop model villages for workers. Thus in connection with the proposed Homestead Commission in Massachusetts it was thought possible to induce insurance companies to loan large lump sums to such a commission, the loan to be guaranteed by the State and secured by the land and buildings erected.

POLICY LOANS. A number of insurance com-

pany presidents called attention during the year to the increasing amount of policy loans. The 33 companies doing business in New York State had \$441,379,000 of outstanding loans on policies on December 31, 1910. It was pointed out that these loans are rarely repaid; it was stated that about 90 per cent. were never repaid. They are usually a first step towards the cancellation of the policy. They thus defeat the very object for which insurance was intended. While the policy loan was originally intended to enable the policy holder to meet his premium during periods of financial stress, the practice has become common of using the policy loan to purchase luxuries, often beyond the real standard of the purchaser. For this reason the president of the National Life Insurance Company of Vermont thought policy loans should be charged 6 per cent. interest.

FIRE INSURANCE. Much attention has been given in recent years to the enormous losses due to fire in the United States. In spite of the fact that improvements have been made in building construction, in methods of fire prevention, and in the efficiency of city fire departments, the total losses from fire continue to remain at an enormous sum, instead of diminishing as might be expected. During the five years 1907-1912, the total losses from fire were \$1,250,000,000; this was slightly less than the total for the preceding five years 1902-1906 inclusive, owing to the San Francisco disaster of 1906 bringing the total fire loss of that year up to \$459,710,000. According to the *Journal of Commerce* the fire loss in 1911 was \$234,337,000. This was almost exactly the same as the loss of 1910, 1.5 per cent. greater than in 1909, and about the same as in 1908 and 1907. That these losses are excessive has been shown by many comparisons between the United States and Europe. The annual per capita fire loss in the United States is about \$2.50. In Europe the average is only 33c., ranging from 12c. in Italy, 30c. in France, to 49c. in Germany. A table, prepared from government data showing the fire losses in 1907, in American and European cities classified according to population, showed that in cities of 10,000 to 30,000 population the loss in the United States was \$2.37 per capita and in Europe 81 cents per capita; in cities of 100,000 to 300,000 in the United States \$2.14, Europe 37 cents; in cities with over 300,000, United States \$2.24, Europe 65 cents. The annual expense of fire protection in the United States since 1907 has averaged about \$240,000,000; of this sum about \$154,000,000 represents the excess of premiums over insurance paid by the insurance companies; \$29,000,000 represents the annual expense of waterworks chargeable to the fire service; \$49,000,000 represents the annual expense of fire departments; the remainder is due to private expense for fire protection. If to this expenditure is added the losses, the total outlay due to fire loss and prevention exceeds \$5.30 per capita each year.

According to the report of Superintendent of Insurance Hotchkiss of New York State there were 183 companies writing fire insurance in that State in the year ending December 31, 1910. Of these 148 were domestic joint-stock companies, one-third of them being New York companies; 37 were foreign joint-stock companies; and eight were mutual companies. The total assets of these companies were \$553,253,-

000, of which 80 per cent. was credited to domestic joint-stock companies and practically all the remainder to the foreign joint-stock companies. The total income for the year was \$315,760,000, of which \$275,171,000 came from premiums. The total disbursements were \$279,148,000, of which \$137,379,000 went for fire losses, \$61,823,000 for commissions, \$23,500,000 for salaries and office expenses, and \$12,821,000 for dividends. The total amount of fire risks in force was \$43,443,159,000.

REPORT OF LEGISLATIVE INVESTIGATING COMMITTEE. The committee of the New York legislature which began in 1910 the investigation of fire insurance companies operating in that State was issued in the summer of 1911. Among the topics discussed in that report were the following: The advisability of fixing fire insurance rates by State authority instead of by the New York Fire Insurance Exchange as at present; the licensing of agents and brokers by the State, instead of by the New York Fire Insurance Exchange; the advisability of enacting an anti-rebate law applying to fire insurance similar to the anti-rebate law applying to life insurance; the need of a State fire marshal; improvements in methods of fire prevention; greater publicity as to the methods of classification used by the different fire insurance companies; compulsory reporting to the insurance department of the amounts of insurance carried in congested areas; modification and simplification of the standard fire insurance policies; the admission to the State of mutual companies doing business in special lines, such as the New England Mill Mutuals.

FRATERNAL INSURANCE. Though fraternal insurance is not as conspicuous as the insurance

of the regular old-line insurance companies, nevertheless it is probable that the total amount of insurance in all fraternal societies is little short of that in all of the regular life insurance companies. The number of such orders issuing insurance in 1910 was 497, according to the *Insurance Year Book*. Their total income for that year was \$128,631,000; total claims paid, \$92,280,000; total insurance in force, \$9,562,511,000. These orders had issued 8,558,000 certificates of insurance, and they owned property and investments valued at \$129,426,000. The amount of insurance written by the reporting orders has increased considerably in recent years, the average for the past five years having been nearly \$1,200,000,000 per year. The foregoing statistics relate only to the well-established orders and do not include the hundreds or even thousands of small fraternal societies which spring up like mushrooms, only to disappear after a year or two.

The principal problem which has been confronting the fraternal insurance societies in the past few years is that of placing themselves on a sound actuarial basis. During the past ten years some of the more important organizations have made strenuous efforts to put their rates high enough to guarantee their permanent solvency. This has been accomplished only by a little struggle. It is still true of the majority of even the better known societies that their rates are not high enough to carry them when their membership has reached a much higher age average. This matter was taken up at the 1909 National Convention of Insurance Commissioners. At their 1910 convention the commissioners drafted a model uniform law, which was thereafter pushed through more than

	Date of Foundation	Membership	Benefits Disbursed
Ben Hur, Tribe of.....	1894	117,385	\$ 8,193,837
B'nai B'rith, Independent Order of.....	1843	35,254	.....
B'rith Abraham Order.....	1859	150,000	.....
Brotherhood of American Yeomen.....	1897	160,000	6,565,770
Catholic Benevolent Legion.....	1881	16,463	21,856,300
Catholic Knights of America.....	1877	19,000	17,400,000
Catholic Mutual Benefit Association.....	1876	60,841	23,783,063
Court of Honor.....	1895	64,769	6,875,800
Druids, United Ancient Order of.....	1781	32,000	7,260,096
Eagles, Order of.....	1889	317,750	7,958,237
Elks, Benevolent and Protective Order of.....	1868	359,677	3,805,529
Foresters, Ancient Order of.....	1836	43,501	153,000,000
Foresters of America.....	1864	239,496	32,093,910
Foresters, Independent Order of.....	1874	242,000	31,859,269
Fraternal Brotherhood.....	1896	50,352	2,414,641
Fraternal Union of America.....	1896	29,258	2,273,260
Free Masons.....		1,389,317	.....
Golden Cross, United Order of the.....	1876	17,863	11,133,312
Heptasophs, Improved Order of.....	1878	74,465	17,978,259
Hibernians of America, Ancient Order of.....	1836	.....	.....
Irish Catholic Benevolent Union.....	1869	15,000	.....
Knights and Ladies of Honor.....	1877	73,189	31,550,000
Knights of Columbus.....	1882	275,000	5,520,070
Knights of Honor.....	1873	18,345	97,748,968
Knights of Malta, Ancient and Illustrious Order of the.....	1848	30,000	.....
Knights of the Golden Eagle.....	1873	85,918	5,334,698
Knights of Pythias.....	1864	711,381	.....
Knights of the Maccabees of the World.....	1893	284,278	44,642,274
Knights of the Modern Maccabees.....	1881	106,882	.....
Ladies' Catholic Benevolent Association.....	1890	125,462	8,805,750
Ladies of the Maccabees of the World.....	1892	163,882	8,715,296
National Union.....	1881	63,707	32,601,480
New England Order of Protection.....	1887	65,176	.....
Odd Fellows.....		1,480,039	.....
Protected Home Circle.....	1886	80,396	6,133,953
Red Men, Improved Order of.....	1763	494,218	28,284,844
Royal Arcanum.....	1877	.....	135,573,716
Royal League.....	1883	30,376	7,543,549
United American Mechanics, Order of.....	1846	33,200	.....
United American Mechanics, Junior Order of.....	1853	192,670	.....
United Workmen, Ancient Order of.....	1868	110,086	200,000,000
Woodmen of America, Fraternity of Modern.....	1883	1,129,805	94,122,350
Woodmen of the World.....	1890	.....	4,172,568

a dozen State legislatures in 1911. This bill is a compromise between those who favored such stringent action that unsound orders would be speedily extinguished and those who would leave the matter to adjust itself. When added to other legislation, the 1911 laws bring it about that as many as twenty-five of the States now provide for a moderate degree of regulation of fraternal societies. The effect is that it is becoming more and more difficult for new orders to be promoted on an inadequate basis. Moreover, the gradual extinction of orders whose rates will not enable them to pay their claims will be accomplished. That continued advance may be expected in this regard is evidenced by the fact that the National Fraternal Congress, which comprises a large proportion of the leading societies, has declared itself definitely in favor of the adoption of a more scientific basis for their financial operations.

Every attempt to raise the rates is of course strenuously resisted by the older members, upon whom the increases fall most heavily. In some cases the assessments of older members have been raised to five times their preceding amount. The decisions of the courts as to the legality of such increases have varied. In some States the increases have been upheld on the ground that the societies had a right to raise their rates to an adequate level, whereas in others such increases have been pronounced illegal on the ground that the society had no authority to raise the rates beyond the amount agreed upon in the original contract.

On the preceding page is a list of the most important fraternal organizations, with their membership in 1911 and the amounts disbursed by them from their establishment.

INSURANCE, NATIONAL. See GREAT BRITAIN, and WORKINGMEN'S INSURANCE, *History*.

INSURANCE FOR THE SICK. See WORKINGMEN'S INSURANCE.

INSURANCE, WORKINGMEN'S. See WORKINGMEN'S INSURANCE.

INTERNAL - COMBUSTION ENGINES. The great progress made with various types of internal-combustion engines, in which fuel is used in the form of gas, was particularly emphasized in 1911, and it was realized that the gas engine had become to be considered a serious rival not only of the steam engine, but even of the steam turbine. The maximum size of internal-combustion motors had greatly increased, and a new development of importance was the increased use of heavy oil engines of the Diesel type. When it is recalled that the first large gas engine, a machine of 600-horsepower, was exhibited at the Paris Exposition of 1900, the steady development can be appreciated by the fact that at the Brussels Exposition of 1911 there were shown gas engines of the four-stroke cycle type with 1500 horsepower in each cylinder, and gas engines of the two-stroke cycle type with 2000 horsepower in each cylinder. There were units of 8000 horsepower of the twin tandem double-acting type in use during the year, and it was reported that large gas-engine plants could be installed at the same cost, and often for less outlay than the steam turbine, which had become the approved practice for central station work. For the smaller central stations the gas engine was considered especially well adapted and to have great possibilities, and a number of plants in Europe so equipped were showing marked economy. In

Switzerland at such generating stations Diesel engines up to 2000 horsepower were in use. Engines of this type were being made as light in weight as triple-expansion steam engines, and some installations compared favorably with steam turbines and boilers. In one case a 1000-horsepower gas engine installed weighed but 187 pounds per horsepower, as against 180 pounds for a steam turbine and boiler installed in like capacity.

In addition to the use of large gas engines for various purposes on land, there was considerable development of internal-combustion motors for marine service (see NAVAL PROGRESS). At the same time, important steps were being taken to develop internal-combustion locomotives for railway purposes, and several such were being used experimentally in Europe on standard-gauge tracks. The Prussian State Railways were reported to be operating a 1000-horsepower locomotive with a Diesel engine.

FUELS FOR INTERNAL-COMBUSTION ENGINES. That the range of possible and economical fuels for internal-combustion motors was being extended was clearly demonstrated in 1911. The United States Bureau of Mines had under way important investigations in regard to high ash coals as fuels for producer plants, as well as other low-cost fuels, and in Canada it was shown that peat could be prepared for use in the producer at from 30 to 40 per cent. of the cost of equivalent British thermal units in anthracite coal in the Dominion. Progress also was being made in the study of producer gas from lignite and from high ash coals in addition to peat. It was found that gas producers could be built to employ crude oil successfully, and progress in this field was taking place slowly but surely. In California, with crude oil as fuel at a cost of 2.3 cents per gallon, the same amount of power was developed per gallon of oil used in the oil producer as with the old standard internal-combustion engine operated upon distillate costing 7 cents per gallon.

Tar oil has become a common fuel for Diesel engines of 600 to 800 horsepower, and has been employed in one engine at least of 4000 horsepower. Both gas-retort tar and thick coke-oven tar can be used as fuel if there is injected into the cylinder a small amount of light oil to assist in igniting the tar. This process has been developed to a point where it is claimed that a wide range of tars can be used without developing smoke or appreciable residues. The amount of ignition oil used in some tests at the Körting works in Germany was about 2 per cent. when operating at full load, and about 13 per cent. when working at half load. A 600-horsepower Diesel engine to operate with raw tar was reported under construction during the year. See SHIPBUILDING and NAVAL PROGRESS.

INTERNATIONAL BALLOON RACE. See AERONAUTICS.

INTERNATIONAL CONGRESS OF LABOR. See TRADE UNIONS.

INTERNATIONAL LANGUAGE. See LANGUAGE, INTERNATIONAL.

INTERNATIONAL OPIUM CONGRESS. See OPIUM.

INTERNATIONAL PLAGUE CONGRESS. See PLAGUE.

INTERNATIONAL LABOR SECRETARIAT. See LABOR UNIONS.

INTERNATIONAL STEEL ASSOCIA-

TION. See UNITED STATES STEEL CORPORATION.

INTERNATIONAL TRADE. See WORLD'S TRADE, and articles on countries, industries and crops.

INTERNATIONAL TRANSPORT WORKERS' FEDERATION. See STRIKES.

INTERNATIONAL WEIGHTS AND MEASURES. See METRIC SYSTEM.

INTERPARLIAMENTARY UNION. See ARBITRATION.

INVALIDITY INSURANCE. See WORKMEN'S INSURANCE.

IOWA. POPULATION. According to the Thirteenth Census the population of the State in 1910 was 2,224,771, as compared with 2,231,853 in 1900, a decrease of 7082 in the decade. Iowa was the only State showing a decrease in population in 1910. The chief cities in the State, with their populations in 1910 are as follows—the figures in parenthesis are for 1900: Des Moines, 63,368 (62,130); Sioux City, 47,828 (33,111); Cedar Rapids, 32,881 (25,656); Dubuque, 38,494 (36,297); Council Bluffs, 29,292 (25,802); Davenport, 43,028 (35,254); Waterloo City, 26,693 (12,580).

AGRICULTURE. The Thirteenth Census included statistics of agriculture, bearing date April 15, 1910. Iowa is the only State in the Union which showed a decrease in population between 1900 and 1910, and this decrease as shown by the census figures was entirely in the agricultural regions of the State. The total number of farms in the State in 1910 was 217,044, as compared with 228,622 in 1900, a decrease of 11,578 in number and 5.1 per cent. The land in farms amounted to 33,930,688 acres and the improved land in farms 20,491,199. The average acreage per farm was 156.3. In spite of the decrease in the number of farms, the statistics show a great increase in the value of farm property. In 1910 this was \$3,745,860,544, as compared with a value in 1900 of \$1,834,345,546. This includes land, buildings, implements and machinery, domestic animals, poultry, and bees. The average value of all property per farm was \$17,250, as compared with \$8023 in 1900. The average value of land per acre was \$82.58, as compared with \$36.35 in 1900. Of the 217,044 farms in the State in 1910 134,929 were operated by owners and managers and 82,115 by tenants. While the total number of farms decreased by 11,578 during the decade and the number operated by owners and managers decreased 13,957, the number operated by tenants increased 2379. Of the farms operated by owners, those free from mortgage in 1910 numbered 63,234, while 68,045 were mortgaged. Of the owners and operators of farms 167,856 were native white, 48,987 were foreign-born white, and 201 were negro and other non-white. The various kinds of domestic animals and poultry and bees were valued at \$393,003,196, as compared with a value in 1900 of \$278,830,096. The cattle numbered 4,448,006, valued at \$118,864,130; horses and colts, 1,492,226, valued at \$177,999,124; mules, 55,524, valued at \$7,551,818; swine, 7,545,853, valued at \$69,693,218; sheep and lambs, 1,145,549, valued at \$5,748,836. The poultry of all kinds numbered 23,482,880, valued at \$12,269,881. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

		Acreage	Prod., bu.	Value
Corn	.....1911	9,850,000	305,350,000	\$161,836,000
	.....1910	9,470,000	343,761,000	123,754,000
Wheat	.....1911	647,000	10,622,000	9,348,000
	.....1910	532,000	11,174,000	9,497,000
Oats	.....1911	4,950,000	126,225,000	51,752,000
	.....1910	5,100,000	192,780,000	52,051,000
Rye	.....1911	30,000	540,000	416,000
	.....1910	35,000	648,000	415,000
Potatoes	.....1911	174,000	12,876,000	9,399,000
	.....1910	172,000	12,384,000	7,430,000
Hay	.....1911	3,240,000	2,592,000	32,400,000
	.....1910	3,600,000	3,780,000	36,288,000

a Tons.

MINERAL PRODUCTION. The mineral products of the State in 1910 were valued at \$22,730,658. Of this the coal produced was valued at \$13,903,913; sand at \$558,056; clay products at \$5,328,241. Other mineral products of the State include sandlime brick, mineral waters, and lime.

The coal production of the State in 1910 was 7,928,120 short tons, valued at \$13,903,913, an increase of 170,358 tons in quantity and \$1,110,285 in value over 1909. The coal mines of the State benefited by the strike in the Illinois fields, which eliminated the competition of coal from that State from local markets. The mines were comparatively free from strikes during the year. The general strike, which began on April 1, lasted six weeks, while in Illinois it lasted practically six months. There were employed in the coal mines of the State in 1910 16,666 men, who worked an average of 218 days. The average production per man was 476 tons for the year.

FINANCE. On June 30, 1911, there was on hand in the general State revenue fund, \$1,282,539, with outstanding warrants of \$173,745, leaving a net balance of \$1,108,793. The State has no bonded indebtedness. The assessed value of all property in 1911 was \$757,336,279, which is one-fourth of the actual value.

CHARITIES AND CORRECTIONS. The General Assembly of 1911 enacted several important statutes which are noted as follows: One provided for granting pensions to firemen who have attained the age of fifty years and who have served continuously as firemen for twenty-two years. The rate of pension is one-half that of the pay. An act was passed making it compulsory to levy tax for pensions of retired policemen. An act was passed authorizing the operation of vasectomy or ligation of the Fallopian tubes upon certain inmates of State institutions who are criminals, idiots, feeble-minded, imbeciles, drunkards, drug fiends, epileptics, or syphilitics. Although this was designed to prevent the procreation of defectives and criminals, yet no operations, so far as we are aware, have been performed under the act. An act was passed permitting courts to suspend sentences of imprisonment of certain persons convicted of crime, with the purpose of giving persons convicted the opportunity to reform before the stigma of having served a term of imprisonment for crime attaches. A highly important meeting of the State conference of charities and correction was held at Iowa City on November 19, 20, and 21, 1911.

POLITICS AND GOVERNMENT

The legislature met in 1911 and the most important measures passed will be found in the paragraph *Legislation* below. There was no State

election during the year, and the most important political event was the choosing by the legislature of a senator to succeed Senator Dolliver, who died in 1910. On the death of Senator Dolliver the governor appointed Lafayette Young to fill the place until the legislature could act. The attempt to elect Dolliver's successor resulted in a deadlock in the legislature which lasted twelve weeks, and resulted on April 12 in the election of William S. Kenyon, assistant to the attorney-general of the United States. Senator Kenyon will hold his seat until March, 1913, the date of the expiration of the term of Senator Dolliver. The State legislature passed a primary bill based on the Oregon plan, but this was vetoed by Governor Carroll, who declared that certain of its provisions were an evasion of the constitution. The constitutional amendment providing for the initiative and referendum was defeated by the legislature, which also rejected the joint resolution providing for woman suffrage. On January 2 the State Railway Commission ordered a reduction of express rates of from 5 to 20 per cent.

LEGISLATION. The measures passed at the legislative session of 1911 include the following: Several radical changes were made in the laws relating to taxation. An important change was made in the statutes relating to criminal procedure. The new statute allows county attorneys in certain cases, with the approval of the court or a judge thereof, to prosecute criminal cases to final judgment on information without the intervention of the grand jury. A defendant under this statute may be prosecuted upon information prepared by the county attorney for any crime known to the laws of the State when the county attorney and the court, or a judge thereof, determine such a trial advisable. This statute is not intended to abolish the grand jury and trials by information may be resorted to only in exceptional cases. A statute was enacted providing for the pardoning of certain criminals for a first offense. Among the statutes passed relating to education was one providing for a mileage tax for the support of the State educational institutions. A statute also was passed providing for the granting to teachers of life certificates, and the State board of education was given more power and additional duties. An unusual and important statute was one creating the office of commerce counsel. This officer was given many powers, including the appointment of assistants, subject, however, to the approval of the board of railroad commissioners. It is made his duty to investigate the reasonableness of rates charged by railroads for service rendered. He has similar charge also of the rates of express companies and parties or corporations subject to the jurisdiction of the board of railroad commissioners. In general, he represents the people of the State in matters pertaining to commerce. Few new statutes were enacted for the regulation of the sale of intoxicating liquors. Wholesale liquor dealers of the State are allowed to sell liquors to registered druggists. The sale of cocaine and certain other drugs was prohibited, except to physicians. New legislation for the working of mines and the protection of miners was enacted, and a labor commission was created to investigate and report upon the question of compensation for laboring men injured in hazardous employments. The federal income tax amendment was ratified by the legislature and approved by

the governor on February 27, 1911. See the foregoing paragraph.

STATE GOVERNMENT, 1911. Governor, B. F. Carroll; Lieutenant-Governor, George W. Clarke; Secretary of State, W. C. Hayward; Treasurer, W. W. Morrow; Auditor, J. L. Bleakly; Attorney-General, George Cosson; Superintendent of Education, A. M. Deyoe; Adjutant-General, Guy E. Logan—all Republicans.

JUDICIARY. Supreme Court: Chief justice, John C. Sherwin; judges, Scott M. Ladd, Emlin McClain, William D. Evans, Horace E. Deemer, S. M. Weaver; clerk, Burgess W. Garrett—all Republicans.

STATE LEGISLATURE, 1911. Republicans, Senate, 34; House, 70; joint ballot, 104. Democrats, Senate, 16; House, 38; joint ballot, 54. Republican majority, Senate, 18; House, 32; joint ballot, 50.

The representatives in Congress will be found in the article UNITED STATES, section Congress.

IOWA, STATE UNIVERSITY OF. An institution of higher learning at Iowa City, Iowa, founded in 1847. The number of students enrolled in the various departments of the university in 1910-11 was 2300. The faculty numbered 175. An important administrative change in the history of the college during the year was the inauguration of President John G. Bowman, succeeding President George E. MacLean, taking office on August 1, 1911. Dean Austin W. Scott succeeded Charles Noble Gregory in the College of Law. The amount of productive funds of the university was \$240,000, and the income amounted to about \$650,000. A students' union has been established, affording a reading-room for men. The new Hall of Physics was nearly completed during the year, at a cost of \$225,000, and a wing to the university hospital, costing \$100,000, was in course of erection. An expedition for zoölogical purposes in the interests of the university was made to Laysan Island. The library contains about 80,000 volumes.

IRELAND. See GREAT BRITAIN.

IRISH HOME RULE. See GREAT BRITAIN, *History*.

IRON AND STEEL. The iron and steel industry of the United States in 1910 surpassed all previous records by a small margin, according to the reports of the United States Geological Survey. The total volume of business, however, was not so great as was anticipated at the beginning of the year. The recovery in 1909 from the depression of 1908 was so rapid that preparations for much larger production of iron ore and pig iron in 1910 were made than were necessary. As a consequence, there was an overproduction and a gradual depression marked the close of the year.

The iron ore produced in 1910 amounted to 56,889,734 long tons, valued at \$140,735,607 at the mines, as compared with 51,155,437 long tons, valued at \$109,964,903 in 1909. The average price per ton for the whole country in 1910 was \$2.47, as compared with \$2.15 in 1909. Iron ore was mined during the year in twenty-eight States. Of these, four States, Idaho, Montana, Nevada, and Utah, produced ores for fluxing only. A part of the production of Colorado was for fluxing and part for pig iron. The various States in which iron ore occurs are grouped into six commercial districts: The Northeastern District, including Massachusetts, Connecticut, New York, New Jersey, Pennsyl-

vania, and Ohio; the Southeastern District, including Maryland, the Virginias, Kentucky, Tennessee, North Carolina, Georgia, and Alabama; the Lake Superior District, including Michigan, Wisconsin, and Minnesota; the Mississippi Valley District, including Iowa, Missouri, Arkansas, and Texas; the Rocky Mountain District, including Idaho, Montana, Wyoming, Colorado, New Mexico, Utah, and Nevada; and the Pacific Slope District, including Washington and California. Of these districts, the Lake Superior is by far the most important and is followed in order by the Southeastern District and the Northeastern District. The Mississippi Valley and the Western districts are of minor importance. Of the iron ore produced in 1910, 46,420,226 long tons, or 81.60 per cent., were produced in the Lake Superior District.

Among the States producing iron ore, Minnesota ranks first. There were produced in the State in 1910 31,966,769 tons, valued at \$78,462,560. Michigan ranks second, with 13,303,906 tons; Alabama third, with 4,801,275 tons; New York fourth, with 1,287,209 tons, and Wisconsin fifth, with 1,149,551 tons. None of the other producing States produced over 1,000,000 tons. During 1910, of the 451 iron ore mines that operated, 191 mines produced over 50,000 long tons of iron ore each, as compared with 150 mines in 1908. The largest amount produced by any single mine was 3,190,093 long tons, from the Hull-Rust mine at Hibbing, on the Mesabi range, Minnesota. Nine other mines in Minnesota produced more than 1,000,000 tons each. The second largest quantity was 1,797,067 long tons, produced by the Red Mountain group of mines near Birmingham, Ala.

A considerable stock of iron ore was left at the mines at the end of 1910, and this is not included in the production. On December 31, this stock amounted to 9,408,235 tons. The apparent consumption of iron ore in the United States in 1910 was 56,161,091 tons.

The imports of iron ore into the United States in 1910 exceeded the imports of any year heretofore recorded. The total amounted to 2,591,033 tons, valued at \$7,832,225. Fifty-six per cent. of the imports were from Cuba, 17 per cent. from Spain, and about 10 per cent. from Sweden. The bulk of the rest was from Newfoundland. The exports from the United States to other countries in 1910 amounted to 644,875 long tons, an increase of more than 41 per cent. over the exports of 1909.

The latest available statistics for the world's production of iron ore by countries are shown in the following table:

Countries	1908 Tons	1909 Tons
United States	35,924,771	51,155,437
Germany and Luxemburg	24,278,151	25,506,000
United Kingdom	15,031,025	14,979,979
Spain	9,271,592	(a)
France	10,057,145	11,890,000
Russia	(a)	(a)
Sweden	4,713,160	(b)
Austria-Hungary	4,718,700	(a)
Canada	c212,573	c239,324
Newfoundland	935,154	c991,115
Cuba	930,446	1,417,914
Algeria	943,424	891,000
Tunis	148,000	218,000
Greece	515,368	(a)
Italy	539,120	531,000
Belgium	188,780	200,000
China d	133,458	(a)

Countries (cont.)	1908	1909
India	72,300	83,456
Japan	(a)	(a)
Norway	119,656	(a)
Australia	55,194	(a)

a Not available. b Austria produced 2,490,000 tons. Figures for Hungary not available. c Shipments. d Exports.

Of the figures in this table, those for the United States, United Kingdom, Cuba, Canada, India, and Australia are in long tons. Those for other countries are in metric tons.

Pig Iron. The production of pig iron in the United States in 1910 amounted to 27,303,567 long tons, valued at the furnaces at \$425,115,235, as compared with 25,795,471 long tons, valued at \$419,175,000 in 1909. Pennsylvania is first among the States in the production of pig iron. In that State 11,272,323 long tons, valued at \$180,695,338, were produced. This was an increase of 353,499 tons over the production of 1909. Ohio ranks second, with 5,752,112 tons; Illinois third, with 2,675,656 tons; Alabama fourth, with 1,939,147 tons; New York fifth, with 1,938,407 tons. None of the other States produced over 1,000,000 tons. The total number of blast furnaces in 1910 was 473. Of these 293 were in blast on June 30. Of the total pig iron produced, Bessemer and low phosphorous amounted to 11,245,642 short tons; basic (mineral fuel) 9,084,608 long tons; foundry and ferrosilicon 5,260,447 long tons. The other varieties produced in smaller quantities were forge pig iron, malleable Bessemer, spiegeleisen, and ferromanganese.

STEEL. The total production of all kinds of steel ingots and castings in 1910 was 26,094,919 long tons, compared with 23,955,021 long tons in 1909. Of the total amount, 16,504,509 long tons were open-hearth, 9,412,772 long tons were Bessemer, and 177,638 long tons were crucible and other. In the production of open-hearth steel ingots and castings, Pennsylvania ranks first among the States. The total quantity in that State was 10,153,816 long tons. Other States producing more than 1,000,000 long tons were Ohio and Indiana. The largest quantity of Bessemer ingots and castings was produced in Ohio, 3,314,053 long tons. Pennsylvania produced 2,975,750 long tons and Illinois 1,693,053.

Included in the total production of steel in 1910 there were 55,335 tons produced by various minor processes including the electric process. By the latter process there were cast 2141 tons of ingots and castings. These were made with electricity by seven plants in Massachusetts, New York, Pennsylvania, Indiana, and Illinois.

IRON AND STEEL EXPORTS FROM THE UNITED STATES AND OTHER LEADING COUNTRIES, 1900 TO 1911. The official report was as follows: The high record exportation of practically a quarter billion dollars' worth of iron and steel manufactures from the United States in the calendar year 1911 and of over 1½ billion dollars' worth in the decade ending with that year has led the Bureau of Statistics, Department of Commerce and Labor, to prepare a statement showing the relative rank of the leading nations in the exportation of that important factor of international commerce.

The world's leading exporters of iron and steel, according to official figures covering the latest period for which statistics are available, are the

United Kingdom, Germany, and the United States, with totals ranging from a little less than 400 million dollars down to about 250 million dollars each. To these might be added a second group of countries with smaller totals, which would include Belgium, Netherlands, France, Switzerland, and Sweden. These eight countries had in 1910 a total exportation of iron and steel of over one billion dollars, or about 8 per cent. of the entire value of all merchandise entering the international markets of the world. At the head of the list of exporters of iron and steel is the United Kingdom, with a total of 361 million dollars, exclusive of 16 million dollars' worth of agricultural machinery, manufactured in part from iron and steel and by certain countries included under that title. Germany is second in exports of iron and steel, with a total of 339 million dollars, in addition to which exports of agricultural machinery aggregated 9 million dollars. The United States is third, the 1910 figures being 201 million dollars for iron and steel and 31 million for agricultural implements. Belgium shows 65 million dollars' worth of iron and steel, including agricultural machinery, exported in 1910, and France, a total of 45 million dollars, exclusive of 1½ million dollars' worth of agricultural machinery. From Switzerland and Sweden the exports of iron and steel were, in the latest available year, about 18 million dollars each, exclusive of agricultural machinery, amounting to nearly one million dollars in the case of Sweden and about \$150,000 in that of Switzerland.

While the United States thus ranks only third as an exporter of iron and steel, her progress in that branch of commerce has been rapid, the total exports of that class of articles having increased from 103 million dollars in 1901 to nearly or quite 250 million in 1911 and of agricultural implements from 17 million to 35 million dollars during the same period. Taking the period 1900-1910, the latest period for which figures are available in the case of foreign countries, the growth in exports of iron and steel has been as follows: The United Kingdom, from 271 to 361 million dollars; Germany, from 171 to 339 million; United States, from 130 to 201 million; France, from 27 to 45 million; Belgium, from 41 to 65 million; and Switzerland, from 11 to 18 million dollars. In exports of agricultural machinery the United States leads all other countries, with a total in 1910 of 31 million dollars, against 16 million for the United Kingdom, 9 million for Germany, and 1½ million for France.

The 250 million dollars' worth of iron and steel and 35 million dollars' worth of agricultural implements exported from the United States last year (1911) found markets in practically every part of the civilized world. Steam locomotives and steel rails went largely to Canada, Mexico, Brazil, Argentina, and Japan, where the rapid development of railways enabled an increased absorption of those materials from this country. Structural iron and steel of American manufacture is being utilized in increasing quantities by most of the leading countries of North America, as well as in Australia and Japan. The farms of Canada, Argentina, Brazil, Australia, and New Zealand are requiring increasing quantities of American wire. Our sales of electrical machinery show a healthy expansion in such important markets as the

United Kingdom and other European countries, as well as the newer communities of the western hemisphere. The same might be said of sewing machines and metal-working machinery. American cash registers and typewriters are facilitating business in offices scattered in every part of the world—in France, the United Kingdom, and Germany; in Canada, Mexico, and Cuba; in Argentina and Brazil; in India and Australia, and in many other countries, nearly all of them showing larger totals in 1911 than in any earlier year.

The principal articles forming the quarter billion dollars' worth of iron and steel products exported from the United States in the calendar year 1911, with approximate value of each based upon eleven months' figures already at hand, are: Sheets and plates, 18 million dollars; builders' hardware, saws, and tools, 17 million; locomotives and other engines, 17 million; steel rails, 12 million; pipes and fittings, 12 million; wire, 12 million; structural iron and steel, 11 million; sewing machines, 9 million; electrical machinery, 8 million; mining machinery, 7 million; bars and rods, 5 million; cash registers, 4 million; pumps and pumping machinery, 4 million; printing presses, 3 million; sugar-mill machinery, 3 million; and tin andterne plates, nearly 5 million dollars, or five times as much as in the preceding year; while stoves and ranges, shoe machinery, laundry machinery, scales and balances, castings, and wire nails each exceeded one million dollars in the value of the year's exports, representing for the most part increases when compared with earlier years.

IRRIGATION. The period between the years 1907 and 1911 has been one of great activity in the extension of irrigation in all arid sections of the world. In the United States more land has been brought under ditch in that period than in any other period of equal length. This development is outlined more in detail below.

FOREIGN COUNTRIES. In the western provinces of Canada the Canadian Pacific Railway Company has developed and settled large areas, and the provinces themselves have been encouraging irrigation in every way possible. Mexico has created a bank and provided for guaranteeing loans especially to provide funds for irrigation construction, and has organized a bureau of irrigation in its department of promotion. Brazil, Chile, and Argentina have provided for loaning government funds or credit for irrigation construction. The Spanish government has undertaken the construction of irrigation works under agreements with the land owners, by which one-half of the cost is to be repaid by the owners of the lands benefited. Italy has continued its national construction and the advancing of funds for cooperative works. In Egypt the Assuan dam is being raised, greatly increasing its storage capacity, and making it possible to extend considerably the irrigated area in the valley of the Nile. Irrigation is being promoted in South Africa by government construction and aid, as well as by investigation of the water resources and irrigable lands. The state of Victoria, Australia, is extending its irrigation works and buying up the large land holdings under them, to be subdivided and sold in small tracts, which it has been actively engaged in colonizing with farmers from other irrigated countries. The state of New South

Wales, Australia, has been doing similar work, while the Commonwealth of Australia has been considering federal construction. The Turkish government has been making investigations of the feasibility of restoring the irrigation works in the valleys of the Tigris and Euphrates rivers, and has provided for a beginning of the actual work. The Russian government has undertaken the reclamation of large areas in Turkestan by irrigation, and the British government is continuing to extend its canals in India. Figures showing the extension of the irrigated areas throughout the world are not available, but the activity in irrigation construction has been worldwide.

UNITED STATES. During the years 1910 and 1911 the United States Census Bureau has taken a census of irrigation, the preliminary results of which have been published. The leading facts relating to irrigation in the United States in 1909 and 1910 are summarized below, with comparisons with the results of previous censuses. In the table which follows the acreages irrigated in 1889, 1899, and 1909 in the arid and semi-arid regions of the United States are given by States, with the percentage of increase from 1889 to 1899, and from 1899 to 1909:

States	Acreage irrigated		1889-1899	1899-1909	1889-1909
	1909	1899			
Total	13,739,499	7,527,690	3,631,381	82.5	107.3
Arizona	320,051	185,396	65,821	72.6	181.7
California	2,664,104	1,445,872	1,004,233	84.3	44.0
Colorado	2,792,032	1,611,271	890,735	73.3	80.9
Idaho	1,430,848	602,668	217,005	137.5	177.7
Kansas	37,479	23,620	20,818	58.7	13.5
Montana	1,679,084	951,154	350,582	76.5	171.3
Nebraska	255,950	148,538	11,744	72.3	1164.8
Nevada	701,833	504,168	224,403	39.2	124.7
New Mexico	461,718	203,893	91,745	126.5	122.2
North Dak.	10,248	4,872	445	110.3	994.8
Oklahoma	5,402	2,759	.....	95.8	.....
Oregon	686,129	388,310	177,944	76.7	118.2
South Dak.	63,248	43,676	15,717	44.8	177.9
Texas*	164,283	40,952	18,241	301.2	124.5
Utah	999,410	629,293	263,473	58.8	138.8
Washington	334,378	136,470	48,799	146.8	177.6
Wyoming	1,133,302	605,878	229,676	87.1	163.8

* Exclusive of rice.

In addition to the acreage given above, there were irrigated in Texas, Louisiana, and Arkansas 604,730 acres of rice, and in the humid States 28,919 acres of miscellaneous crops, making a total of 14,463,148 acres irrigated in the United States in 1909. The acreage irrigated in 1909 (A), the percentages of the separate enterprises (B), the acreage which existing enterprises were capable of irrigating in 1910 (C), and the total acreage included in projects, either complete or under way in 1910 (D), are given in the following table classified by the type of enterprise controlling the irrigation works.

	A	B	C	D
Total	13,739,499	100.0	19,335,711	31,112,110
U. S. Reclamation service	395,646	2.9	786,190	1,973,016
U. S. Indian service	172,912	1.2	376,576	879,068
Carey act enterprises	288,553	2.1	1,089,677	2,573,874
Irrigation districts	533,142	3.9	804,951	1,589,865

	A	B	C	D
Coöperative enterprises	4,646,039	33.8	6,194,677	8,845,437
Commercial enterprises	1,444,806	10.6	2,416,516	5,096,337
Individual and partnership enterprises	6,258,401	45.5	7,667,124	10,154,513

The most striking fact brought out by this table is the very large percentage of the acreage supplied with water by coöperative, individual, and partnership enterprises, all of which are controlled by the water users. Of the acreage irrigated in 1909, about eighty-four per cent. was served by enterprises of this character, including irrigation districts in this class. All United States reclamation and Carey act enterprises and many of the commercial enterprises are to become coöperative. Classing these with those already under the control of the water users leaves less than ten per cent. of the acreage irrigated in 1909 to be served by works which are not now or soon to be controlled by those who use the water.

The United States Reclamation Service is building works, under the act of Congress approved June 27, 1902, with the receipts from the sale of public lands. The cost is to be repaid to the government by the water users in annual installments, the payments to go into the reclamation fund for the construction of additional works. The United States Indian Service is building works for the irrigation of land in Indian reservations. Under the Carey act (act of Congress, August 18, 1894) the federal government grants to each of the arid States 1,000,000 acres of arid land on condition that the State provide for its irrigation. The States contract with construction companies to build the works necessary to irrigate this land, and the land and water rights are sold under agreements providing that the works shall become the property of the water users when the rights are paid for. Irrigation districts are public corporations organized under State laws, giving them the power to issue bonds and to levy and collect taxes. Payments on both principal and interest on bonds, and the cost of operation and maintenance are levied in the form of taxes, which are a lien on the land in the district. Coöperative enterprises are for the most part controlled by stock companies, the stock of which is owned by the water users. Both water and costs are apportioned according to the stock owned. In Arizona and New Mexico most of the coöperative enterprises are operated under "community" ditch laws or customs. Commercial enterprises supply water for hire, usually demanding the purchase of a water right and the payment of annual rates. Individual and partnership enterprises are controlled by single farmers or by neighboring farmers without formal organization.

In the following table the acreage irrigated in 1909 is classified by the sources of its water supply:

	Acres
Streams	12,940,849
Flowing wells	125,590
Pumped wells	308,043
Reservoirs	98,193
Lakes	70,638
Springs	196,186

The extent and character of irrigation works in the arid region of the United States are shown in the following table:

Length of ditches (miles).....	125,615
Main ditches (miles).....	87,336
Laterals (miles).....	38,279
Number of reservoirs.....	6,933
Capacity of reservoirs (acre-foot).....	12,872,256
Number of flowing wells used for irrigation	5,070
Number of pumped wells used for irrigation	14,544
Number of pumping plants.....	13,951
Engine capacity of pumping plants (h.p.)	207,241
Capacity of pumps (gal. per min.).....	9,918,755

The cost of irrigation work in 1889, 1899, and 1910, and the average cost per acre irrigated are as follows:

	Total cost	Average
1899	\$29,611,000	\$ 8.15
1899	87,482,261	8.89
1909	304,699,450	22.18

The average annual cost of operation and maintenance per acre irrigated in 1909 is reported as \$1.07; in 1899, 38 cents, and in 1889, \$1.07, the same as in 1909.

IRRIGATION, EXPERIMENTAL. See AGRICULTURAL EXPERIMENT STATIONS.

ISIDOR MEDAL. See PAINTING.

ISLE OF PINES, THE. A dependency of New Caledonia (q. v.)

ISOSTASY. See GEOLOGY.

ISRAELS, JOSEF. A Dutch painter, died August 12, 1911. He was born in Groningen, Holland, in 1824, of Jewish parentage. He was intended for a commercial career, but showing artistic aptitude he studied at Amsterdam under Kruseman and at Paris under Picot and Scheffer. He also studied under Delaroche in Paris. Israels began his career as an artist by combining historic and dramatic subjects in the romantic style of to-day. He went by chance after an illness to recuperate at the fishing town of Zangvoort, near Haarlem, where he was so impressed with the daily tragedy of the life of the simple fisher folk, that a vein of pity and woe possessed most of his work thereafter. He continued to live chiefly at Amsterdam until he settled at The Hague in 1870. In 1862 his pictures "The Cradle" and "The Shipwrecked Mariner," exhibited in London, excited much interest. Among other important works of his early career were: "Zangvoort Fishermen," "The Silent House," which gained a gold medal at the Brussels salon in 1858, and "Village Poor." Among his maturer works were: "The Widower," "When We Grow Old," "Alone in the World," and "The Bric-à-Brac Seller," which gained medals of honor at the Paris Exposition of 1900. "David Singing before Saul," one of his latest works, has a touch of the return to the Rembrandt spirit of his youth. He produced, in addition to his paintings, a great number of water colors and etchings. His etchings are noted for their simplicity and sureness of touch. He was perhaps the most eminent of contemporary painters.

ISTHMIAN CANAL ZONE. See PANAMA CANAL.

ITALIAN SOMALILAND. A protectorate administered by the Italian government, having an area of 100,000 square miles and a

population of about 400,000. Mogadisho (Benadir) is the seat of government (inhabitants, 10,000). Imports (1908-9), 2,888,000 lire; exports, 1,740,000. Estimated revenue and expenditure for 1910-11 balanced at 3,551,000 lire. Signor de Martino was governor in 1911.

ITALY. A constitutional monarchy of southern Europe. Capital, Rome.

AREA AND POPULATION. The area is variously estimated at from 110,500 to 110,690 square miles. Estimated population January 1, 1910, 34,947,865. Marriages in 1910, 268,739; births, 1,194,603; deaths, 732,832; still-births, 50,337. Emigrants 1910, 651,475, of whom 214,593 to the United States. According to the preliminary returns, census of June 10, 1911, Rome had 538,634 inhabitants; Naples, 723,208; Milan, 599,266; Turin, 427,733; Palermo, 341,456; Genoa, 272,077; Florence, 232,860.

EDUCATION. In 1907-8 there were in Italy 3576 infant schools, with 7392 teachers and 355,594 pupils; 63,618 public (61,944 teachers, 2,548,583 pupils), and 6534 private (8110 and 184,700) elementary schools; 134 normal schools, with 27,171 students. Secondary education is provided in lyceums and gymnasia, chiefly state-maintained, and special schools are numerous. Students in universities 1909-10, 22,882. While Roman Catholicism is nominally the state religion, entire religious toleration prevails.

AGRICULTURE. About seventy per cent. of the total area of Italy is under cultivation. The following table shows area and production of staple crops in hectares and quintals (1911 preliminary), and the yield per hectare:

	1910	1911	1910	1911
Wheat, ha.....	4,758,600	4,751,600	.....	.....
Wheat, qt.....	41,750,000	52,362,000	8.8	11.0
Rye, ha.....	121,730	112,290	.....	.....
Rye, qt.....	1,381,500	1,345,600	11.3	11.0
Barley, ha.....	247,560	247,600	.....	.....
Barley, qt.....	2,064,600	2,369,400	8.3	9.6
Oats, ha.....	503,300	514,160	.....	.....
Oats, qt.....	4,147,600	5,947,300	8.2	11.6
Corn, ha*.....	1,520,500	1,512,100	.....	.....
Corn, qt.....	24,690,000	23,836,000	16.2	15.8
Rice, ha.....	143,860	144,500	.....	.....
Rice, qt.....	4,379,800	4,792,200	30.4	33.2
Sugar beets, ha.....	50,200	52,590	.....	.....
Sugar beets, qt.....	16,760,700	14,817,000	334.5	272.2
Vines, ha.....	4,462,800	4,477,200	.....	.....
Vines, ht.....	29,293,240	42,000,000	6.6	9.4

* Late sown only. † Hectoliters.

Forest area, about 4,093,000 acres (exclusive of chestnut plantations). Yield, 1909: 1,096,000 cubic meters of timber (37,556,000 lire), 4,049,000 of firewood (48,086,000), 3,994,000 quintals of charcoal (38,490,000). The total value was 124,132,000 lire. Value of secondary products, in addition, about 32,000,000 lire annually. Area replanted with government assistance, 1867-1910, 31,748 hectares.

Average annual production of silk cocoons, 53,758,000 kilograms; of silk, 5,788,000 kilograms.

MINING, MANUFACTURES, ETC. In 1909 there were 714 mines in operation, employing 50,587 persons. The workers employed, the production in metric tons, and the value in lire are given in the table below:

Minerals	Wkrs.	Met. tons	Lire
Sulphur	22,789	2,827,455	32,516,220
Zinc	14,041	129,899	12,504,451
Iron	1,885	505,095	6,964,768
Lead	*	37,945	5,756,891

Minerals (cont.)	Wkrs.	Met. tons	Lire
Coal, etc.	3,232	555,073	4,971,986
Mercury	1,230	97,592	3,600,648
Iron pyrites, etc.	1,622	132,234	2,201,016
Copper	2,046	90,272	1,903,407
Asphalt, etc.	1,214	111,538	1,567,651
Boric acid	338	2,431	875,160
Argent. antimony	313	1,077	211,620
Gold	120	2,890	91,150
Iron manganese	99	25,830	232,470
Manganese	228	4,700	137,310
Silver	75	44	67,800
Lead and zinc	*	290	5,550
Quarries	69,143		50,069,797
Kilns	98,412		159,135,991

* Included in the 14,041 at zinc above.

Number of persons employed in the silk industries (1903), 191,000; in the woolen industries, 38,000; cotton industries, 140,000; vegetable fibre mills, 26,000. Sugar factories (1909-10), 34, with aggregate output of 110,795 tons. Value of industrial chemical products (1909), 134,320,000 lire.

Number of vessels and boats engaged in the fishing industry (December 31, 1908), 26,787, of 77,550 tons, carrying 109,825 fishermen. Value of 1908 catch, 20,287,000 lire (tunny-fish, 2,277,000 lire; coral, 1,407,000).

COMMERCE. The trade is given for three years in lire in the table below:

	1908	1909	1910
Imps. mdse.	2,913,274,509	3,111,710,447	3,204,700,000
Prec. mets.	28,052,400	18,000,800	31,066,000
Total	2,941,326,909	3,121,711,247	3,235,766,000
Exps. mdse.	1,729,263,357	1,866,889,562	2,008,275,000
Prec. mets.	21,012,200	54,067,700	48,116,000
Total	1,750,275,557	1,920,957,262	2,056,391,000

Details of the special trade for 1909 are given in thousands of lire as follows:

Imps.	1000 lire	Exps.	1000 lire
Cereals	368,200	Silk	499,000
Coal	260,500	Cottons	112,900
Cotton	243,700	Fruits	91,100
Silk	180,400	Silks	88,000
Machines	175,300	Chem. prods.	59,500
Chem. prods.	154,000	Hemp	53,400
Timber	151,800	Skins	49,200
Iron	132,500	Cheese	44,800
Skins	100,100	Wine	44,600
Wool	90,700	Eggs	43,400
Fish	86,000	Citrus fruits	35,100
Animals	84,500	Olive oil	34,100
Iron mfrs.	67,900	Sulphur	33,700
Instruments	68,100	Wooden wares	32,800
Woolens	62,800	Marble, etc.	26,700
Copper, etc.	44,700	Pastes	24,100
Silks	43,200	Vegetables	24,700

The trade with principal countries of origin and destination is given as follows, with values in thousands of lire: Germany, 503,464 imports and 307,202 exports; Great Britain, 490,643 and 187,929; United States, 390,193 and 202,374; France, 329,106 and 198,717; Austria-Hungary, 309,303 and 155,087; Russia, 209,600 and 33,597; Argentina, 120,901 and 150,849; British India and Ceylon, 97,466 and 23,008; Switzerland, 80,498 and 216,753; Belgium, 73,345 and 38,781; Turkey, 71,426 and 79,063; China and Hongkong, 60,717 and 5065; Rumania, 55,180 and 8518; Spain, 32,984 and 10,947; Netherlands, 29,770 and 15,069; Tunis, 29,094 and 6975.

FINANCE. The monetary unit is the lira

(worth 19.3 cents). Financial statistics are given below in lire for three successive fiscal years:

	1907-8	1908-9	1909-10
Rev.	2,320,597,699	2,584,696,913	2,602,163,326
Exp.	2,258,720,848	2,502,815,599	2,551,286,013

The revenue for 1910-11 was reported at 2,684,873,689 lire, and the expenditure at 2,574,463,776. Details and totals of the 1911-12 budget are shown in the following table:

Revenue	1000 L	Expenditure	1000 L
State property..	58,162	Treasury	718,708
Direct taxes....	474,470	Finance	314,330
Transactions ..	308,800	For. Affairs....	23,590
Customs, monop-		Justice, etc....	53,929
olies, etc.....	1,044,850	Instruction	101,332
Public services.	172,511	Interior	119,976
Repayments	166,078	Public Works...	52,045
Various	26,430	Posts & tels....	119,397
Special	58,435	War	343,726
		Navy	194,715
		Agriculture, etc.	22,541
Total ord.....	2,309,776	Total ord.....	2,064,288
Extraord	248,155	Extraord	438,685
	2,557,931	Total	2,502,973

The public debt stood July 1, 1911, at 508,471,651 lire. Aggregate cash and reserve of the three banks of issue December 31, 1909, 1,510,805,144 lire. Postal savings banks (December 31, 1909), 9043, with 1,586,518,148 lire deposits; other savings banks, 208, with 2,191,470 depositors and 2,305,210,419 lire deposits.

NAVY. The number and displacement of war vessels of 1000 tons and over, and of torpedo craft of 50 tons and over, built and building, in 1911 were placed at 157, of 312,122 aggregate tons, detailed as follows: Four dreadnoughts (all building), of 85,820 aggregate tons; 8 first-class battleships, of 95,700; 10 armored cruisers, of 78,520; 3 cruisers (8000 to 3000 tons) (all building), of 9670; 6 cruisers (3000 to 1000 tons) of 12,470; 22 torpedo-boat destroyers, of 7587, and 10, of 6130, building; 46 torpedo boats, of 7713, and 28, of 3390, building; 9 submarines, of 1822, and 11, of 3500, building. Of the four dreadnoughts building, the *Dante Alighieri* was launched August 20, 1910; the *Conte di Cavour*, August 20, 1911; the *Leonardo da Vinci* and the *Giulio Cesare* in October, 1911. The cruisers building are the *Quarto* (launched August 21, 1911), the *Marsala*, and the *Nino Bixio*. Estimated naval expenditure for the year ending June 30, 1912: ordinary, 194,714,772 lire; extraordinary, 500,500. Personnel, 30,587 officers and men. See NAVAL PROGRESS.

ARMY. The organization of the central administration of the Italian army was put to a test in 1911 by the outbreak of hostilities with Turkey and the campaign in Tripoli (see TURCO-ITALIAN WAR). The law of 1910 relative to certain changes in organization was being carried out, but the lack of recruits had to be considered, and, although the annual contingent was being increased, the regular army was being maintained at about eighty-five per cent. of its organic strength. The army was organized into 12 army corps, 25 divisions, 3 cavalry divisions, 51 infantry brigades, 8 cavalry brigades, and 12 brigades of field artillery. The total war strength of the kingdom was stated

at about 3,500,000 men, but of these over 2,000,000 are territorial militia, practically untrained, so that a war strength of 1,500,000 trained men was nearer the condition of the country. Service in Italy is compulsory, and two years in the infantry are required.

During the year the Italian army was holding competition trials to determine on a new field gun, as some 600 pieces were required to replace the older types. The competition lay between the Schneider differential recoil field gun and the Deport "scissors trail" gun.

The effective strength and distribution of the army on a peace basis were as follows: (O., officers; N. C. and M., non-commissioned officers and men):

	O.	N. C. & M.
Greater general staff.....	156	.....
Staff	155	.....
346 battalions of infantry.....	7,285	153,515
145 squadrons of artillery and 29 depots	985	26,938
245 batteries of artillery, 98 companies, 51 depots, and 40 companies of train.....	2,217	45,848
74 companies of engineers and 10 companies of train.....	610	10,529
Officers of 88 military districts..	336	.....
12 hospital corps companies....	763	3,712
12 companies of supply.....	452	3,978
Officers of administration.....	356	.....
12 legions of carabineers.....	685	39,067
Military schools	404	2,061
Veterinary corps.....	213	.....
	14,848	276,645

Returns for the peace strength of the army, considering only the officers and men serving with the colors, gave the distribution and numbers of troops as follows: Infantry, 167,000; cavalry, 24,000; field artillery, 27,000; foot artillery, 7000; coast artillery, 5000; technical troops, 11,000; train, 2500; sanitary troops, 3729; total peace strength, 288,409. The fighting strength of the three arms, namely, the infantry, cavalry, and artillery on mobilization, considering only the existing organization, was estimated as follows: Infantry rifles, 300,000; cavalry sabres, 20,880; field guns, 1470; sabres per thousand infantry bayonets, 69.99; field guns per thousand infantry bayonets, 4.90; fully trained reserves available for passing from peace to war footing, 1,250,000.

GOVERNMENT. The executive authority is vested in a king, who acts through a responsible council of eleven ministers. The reigning king (1911), Victor Emmanuel (Vittorio Emanuele) III., was born Nov. 11, 1869; was married (1896) to Princess Elena of Montenegro; he succeeded his father July 29, 1900. Heir apparent, Prince Umberto, born September 15, 1904. The legislative authority rests conjointly in the king and a parliament, consisting of a senate (318 members), and a representative chamber of deputies (608). The ministry, as constituted March 30, 1911, was as follows: Premier and minister of the interior, G. Giolitti; foreign affairs, A. (Marchese) di San Giuliano; justice, C. Finocchiaro-Aprile; finance, L. Facta; treasury, F. Tedesco; war, Gen. P. Spingardi; navy, Vice-Admiral P. Leonardi Cattolica; instruction, L. Credaro; public works, E. Sacchi; agriculture, etc., F. S. Nitti; posts and telegraphs, T. Callasano.

HISTORY

The chief event in the history of Italy in 1911

was the TURCO-ITALIAN WAR, which is discussed under that title. The following paragraphs deal only with the internal affairs of the country during the year.

MINISTERIAL CRISIS. Parliament was reopened on January 24, 1911. Early in the session the chamber passed, after brief consideration, a railway bill which aimed to improve the condition of the lower grades of employees, and added a heavy financial burden to the cost of railway management. Meanwhile the Socialists had brought up the question of the high cost of living and demanded immediate remedies. The government received a vote of confidence on this occasion by 261 against 88. The Luzzati cabinet, however, which came into power in March, 1910, had only an insecure basis from the first. Lacking an effective majority, the premier appealed to representatives of all the political groups, and they were held together only temporarily. In February and March the difficult question of revising the electoral laws came up, and finally the government recommended that the bill for the extension of the franchise and for compulsory voting should be postponed until 1913. The chamber gave the government a majority of 195, but the Radicals voted with the minority, and three Radical members of the ministry resigned rather than break with their party. On account of this defection and the discontent of the Moderates with the government's financial policy, the entire ministry soon afterwards handed in their resignations. Signor Giolitti, who alone could count on a parliamentary majority, then formed a new ministry, which was announced on March 29. Signor Bissolati, the Socialist leader, was summoned to an audience with the king on the political situation—an incident which caused general surprise—and was afterwards offered the portfolio of agriculture in the Giolitti cabinet, but he refused. With three exceptions the members of the Luzzatti ministry retained their portfolios in the new government.

THE GIOLITTI MINISTRY. The new ministry's programme, presented to the chamber on April 6, included a new electoral reform bill and an old-age pension bill, for which the funds were to be secured by a government monopoly of insurance. Pursuant to the latter purpose Signor Nitti, the minister of agriculture, presented on June 3 a bill for a national system of insurance. This required all private insurance companies to present their registers to the officers appointed, whereupon the register would be closed. The affairs of the companies were to be turned over to the government within two weeks from the passage of the act. Existing contracts were recognized, but no new business was to be done. The measure aroused violent opposition, and early in June the chamber agreed to defer the insurance bill until the autumn session and voted confidence in the ministry.

THE CAMORRIST TRIAL. Great interest was shown not only in Italy, but in all parts of the world in the sensational trial of the Camorrista, which began near Viterbo, near Rome, on March 18, 1911. The Camorra was a secret society, which for many years had flourished in Naples despite the efforts of the authorities to suppress it. At the head was a grand master, whose name was supposed to be unknown even to the members. The society consisted of twelve

branches, each composed of semi-independent groups. There was a court of judges, who met and rendered sentence in secret. The society rendered aid to members accused of criminal offenses, and when convicted helped them in escaping punishment. It levied blackmail on the citizens, and at times terrorized the community. A long list of unpunished murders marked its activities. People who refused to obey its commands met mysterious deaths. The occasion of the trial was an atrocious murder of a man and his wife, the Cuocolos, on June 5, 1906, and according to the evidence it was brought out that at a meeting of the Camorristas one Enrico Alfano, who passed under the name of Erricone, had denounced the Cuocolos for having betrayed a comrade, who was afterwards sentenced to penal servitude. The tribunal declared that the Cuocolos deserved death, and four Camorristas carried out the sentence with great ferocity. Cuocolo was lured to a lonely place on the seashore. His body when found bore the marks of thirty-nine wounds. His wife was murdered in bed. The chief informer against them was one of the Camorristas, himself accused of complicity, named Abbatemaggio. The difficulties of the case would be gathered from the fact that there were 600 witnesses and that the counsel for the defense numbered thirty-two. One of the most interesting features of the trial was the examination of Erricone, who defended himself in an exceedingly able manner, showing real power as an orator. The proceedings were still pending at the close of the year.

OTHER EVENTS. It was reported in January, after an inspection by the minister of public works, that great progress had been made in the rebuilding of Messina, destroyed by the earthquake, more than three-fourths of the amount originally placed at his disposal having been expended, and contracts having been made for the expenditure of the balance. It was announced that at that time 40,000 persons were living in temporary dwellings in Messina and that 20,000 were living in houses that had been repaired. The government had had about \$100,000,000 at its disposal for the work of reconstruction. Its present plan was to go on first with the completion of the building of the new public offices, and then to engage in work on private property unless the owners took the necessary measures of their own accord within the next three months. In January the Vatican announced that the year was to be one of mourning in commemoration of the loss of temporal power. The year was notable as the fiftieth anniversary of Italian unity, and the jubilee was celebrated with many festivities which began at Rome in the Aula Senatoriale, where the king made an address. Exhibitions were held at Rome, Florence, and Turin, and in June the imposing monument of Victor Emmanuel II. was unveiled at Rome. Asiatic cholera appeared in southern Italy in June and July. A serious riot broke out at Verdicaro at the end of August owing to the ignorance of the people, who misunderstood certain sanitary regulations. They attacked the town hall and set it on fire, and committed other acts of violence until they were put down by the authorities. The king received a visit from King Peter of Serbia in February and from several royal representatives, including the crown prince of Germany, in April, in connection with the jubilee.

For an account of earthquakes in 1911, see **EARTHQUAKES**. For notes on architecture in 1911 see **ARCHITECTURE**. See also **EXPOSITIONS**.

ITALY, FIFTIETH ANNIVERSARY OF THE KINGDOM OF. See **EXPOSITIONS**.

IVES, HALSEY COOLEY. An American art director, died May 6, 1911. He was born in Montour Falls, N. Y., in 1846. His education was received in the technical schools of South Kensington, London, and various art schools. In 1874 he was appointed director of the St. Louis School of Fine Arts, the art department of Washington University. This office he retained until 1909, when he was appointed director of the City Art Museum of St. Louis. He several times represented the United States government as commissioner abroad and was chief of the art department of the Chicago Exposition in 1893 and of the St. Louis Exposition in 1904. He received decorations from many foreign orders and societies. He was recipient of the grand prize for educational services from the St. Louis Exposition in 1904 and of the silver medal for the landscape "Waste Lands" at the Portland Exposition.

IVORY COAST, THE. A French West African colony, covering 315,250 square kilometers; population, 1,127,170 (658 French). Bingerville is the capital. Imports (1909), 11,192,242 francs; exports, 11,787,852. There are 183 kilometers of railways. Revenue (1909), 5,022,784 francs; expenditure, 4,923,273. Lieutenant-governor in 1911, G. Angouvant. See **FRENCH WEST AFRICA**.

JAMAICA. An island of the West Indies; with dependencies, a British crown colony. The island covers 4207 square miles; population (census of April, 1911), 831,383. Imports (1910), £2,561,874; exports, £2,628,307. Tonnage entered and cleared (1909), 3,129,207. Railways, 184 miles. Revenue (1909-10), £1,140,327; expenditure, £1,190,166. The governor in 1911 was Sir Sidney Olivier. Attached to Jamaica are the **TURKS AND CAICOS ISLANDS**, **CAYMAN ISLANDS** (qq. v.), **MORANT CAYS** and **PEDRO CAYS**.

JACOBS, W. W. See **LITERATURE, ENGLISH AND AMERICAN, Fiction**.

JACKSONVILLE. See **FLORIDA**, and **MUNICIPAL GOVERNMENT**.

JAGGARD, EDWARD AMES. An American jurist, died February 13, 1911. He was born at Altoona, Pa., in 1859, and graduated from Dickinson College in 1879. He studied law at the University of Pennsylvania and was admitted to the bar in 1882. In 1888 he was appointed lecturer on medical jurisprudence at the St. Paul Medical College. From 1892 to the time of his death he was a member of the law faculty of the University of Minnesota. In 1898 he was appointed judge of the district court of the second district of Minnesota, serving until 1905, when he was appointed associate justice of the Supreme Court of the State. He was a member of several learned societies and was the author of *Jaggard on Torts* (2 vols., 1893); *Jaggard on Tazation in Minnesota and North and South Dakota* (1901); *Jaggard on Tazation in Iowa* (1902); *Anomalies in the Law of Libel and Slander* (1903), and many published addresses.

JAMES, HENRY. See **LITERATURE, ENGLISH AND AMERICAN, Fiction**.

JAMES, WILLIAM. See **PHILOSOPHY**.

JANEWAY, EDWARD GAMALIEL. An American physician, died February 10, 1911. He was born in New Jersey in 1841 and graduated from Rutgers College in 1860. He began the study of medicine at the College of Physicians and Surgeons at Columbia University, but interrupted his course to serve as medical cadet at the United States army hospital at Newark, N. J., in 1862-3. He took his degree in 1864, and from 1868 to 1872 he was curator of the Bellevue Medical College. From 1872 to 1879 he was professor of pathology and practical anatomy and from 1881 to 1886 professor of diseases of the mind and nervous system, and from 1886 to 1892 professor of medicine at that institution. From 1898 to 1905 he was dean of the University and Bellevue Hospital Medical College. In addition to these professional employments, Dr. Janeway held several important public offices. He was commissioner of the New York City health department and was a member of the advisory committee of the Chamber of Commerce during the cholera scare of 1892. In 1909 he was delegate to the Sixteenth International Medical Congress at Budapest. He was one of the best known diagnosticians and consulting physicians in the United States, and was a specialist in nervous diseases. He received the degree of LL. D. from Rutgers College and from Columbia and Princeton universities. He wrote many medical papers and was the author of *Clinical Points in the Diagnosis of Hepatic Affections*.

JANVRIN, JOSEPH EDWARD. An American physician, died December, 1911. He was born in Exeter, N. H., in 1839, and was educated at Phillips Exeter Academy. He served throughout the Civil War as assistant surgeon of the Fifteenth New Hampshire Volunteers. After graduating from the College of Physicians and Surgeons he began to practice in New York in 1872 as assistant surgeon in the Woman's Hospital in the city of New York. He held this position until 1882. A year later he became gynecologist of the New York Skin and Cancer Hospital and held this position until the time of his death. In 1896-7 he was president of the New York County Medical Association. He was a member of many medical and patriotic societies.

JAPAN. An eastern Asiatic island empire, a constitutional monarchy. Japan proper consists of Honshiu (the "mainland"), Kiushiu, Hokkaido, and many smaller islands. Annexed to the empire are Formosa (Taiwan), the southern half of Sakhalin (Karafuto), Korea (Chosen), and, as a leasehold, Kwantung (Kwantung-shu) (qq. v.), and the Pescadores. Capital, Tokyo.

AREA AND POPULATION. The area of Japan proper is stated at 24,794.36 square ri (147,655 square miles); the island of Honshiu covers 14,492.21 square ri (86,304 square miles); Hokkaido (Yezo), 5056.78 square ri (30,115 square miles); Kiushiu, 2311.86 square ri (13,767 square miles); Shikoku, 1151.24 square ri (6856 square miles). The population of Japan proper is reported as having been 33,110,000 in 1872, 39,607,000 in 1888, 43,763,000 in 1898, and 49,587,243 on December 31, 1908 (25,045,359 males and 24,541,884 females). Estimate in 1911, 51,591,361 for Japan proper and 17,015,312 for Japanese possessions (Chosen, Taiwan, etc.); total, 68,606,673. By grand divisions the population of 1908 was as follows: Honshiu, 37,

413,141 (northern, 7,480,380; central, 19,003,457; western, 10,929,304); Kiushiu, 7,748,402; Shikoku, 3,288,290; Hokkaido, 1,137,410. At the end of 1909 there were in Japan 17,537 foreigners, of whom 9880 were Chinese, 2499 British, 1651 American, and 800 German. In 1908 there were 461,949 marriages, 1,672,627 births, 1,038,110 deaths; in addition, 162,676 still-births. The large annual increase of population in an already crowded territory in considerable degree explains Japan's policy of expansion. This increase in recent years is especially remarkable when brought into comparison with the former almost stationary figures of population. It is stated that a census of 1721 showed about 29,000,000 inhabitants, and that, although there was no emigration, the net increase during the 125 years ending 1846 was less than one-fortieth of one per cent. per annum. Since 1872, when the periodical census was resumed, the population has increased by about 1.35 per cent. per annum. This change in rate of increase is attributed to the removal of checks and regulations imposed by the feudal system, as well as of barriers to free trade and intercommunication, which often prevented famine relief. It should be noted that, with the perhaps unfortunate development of Western industry and culture in Japan, the urban population is increasing much more rapidly than the rural. In the five years from 1903 to 1908 the average increase in cities of over 20,000 was 20.5 per cent., as compared with 6.1 per cent. for the whole country. Estimated population of the larger cities December 31, 1908: Tokyo, 2,186,079; Osaka, 1,226,590; Kyoto, 442,462; Yokohama, 394,303; Nagoya, 378,321; Kobe, 378,197; Nagasaki, 176,480; Hiroshima, 142,763.

EDUCATION AND RELIGION. Primary instruction is compulsory. The latest statistics available relate to March 31, 1908. At that time there were 27,125 elementary schools, with 122,038 teachers and 5,713,698 pupils; 288 middle schools (5546 teachers and 111,967 pupils; 5382 special and technical schools (8454 and 283,204); 2210 "various" schools (7908 and 152,288); besides high schools, normal schools, kindergartens, and the universities of Tokyo (5411 students), Kyoto (1412), and Tohoku (894). Public expenditure on schools in 1907-8, 55,633,579 yen.

The principal religious forms are Shintoism and Buddhism. The latest figures available are for December 31, 1907. At that date Shintoism had 12 administrative heads of sects, 78,140 preaching priests, 15,008 monks, 171 state temples, 55,095 district temples and temples of inferior rank, and 121,474 other (non-distinguished) temples. Buddhism had 52 administrative heads of sects, 50,155 high priests, 781 high priestesses, 72,501 preaching priests, 47,631 monks, 72,128 regular temples, and 37,417 other temples. The numbers of the Buddhist priesthood remain about stationary, those of Shintoism show a slight decline. Christianity was represented December 31, 1907, by 1808 ministers (1200 Japanese and 608 foreign) and 1160 churches, chapels, etc. Roman Catholic churches numbered 167; Orthodox, 129; Presbyterian, 201; Congregational 118; Episcopal, 196; Methodist, 148; Baptist, 55.

AGRICULTURE. On January 1, 1910, taxed land owned by private persons and local corporations amounted to 14,475,478 cho, of which 5,272,737 cho were under cultivation, 7,509,952 under forest, and 1,284,515 open field (one cho=

2,450,7204 acres). Rice is by far the most important crop. The following table shows, for the cereal crops, in metric measure, the area harvested, the production in 1910, the estimated production in 1911, and the yield per hectare in 1910:

Crops	Hectares		Quintals		Qs. per ha.
	1910	1911	1910	1911	
Rice	2,927,076	2,937,000	66,452,561	75,451,000	22.7
W. h.	471,529	492,000	6,457,693	6,755,000	13.7
Bar.	1,285,458	1,260,500	19,522,249	20,800,000	15.2
Oats	39,333	42,000	618,691	673,000	15.7
Corn	52,712	55,000	949,501	884,000	18.0

Rice crops, in Winchester bushels, have been as follows: 1902, 189,056,270; 1904, 362,271,301; 1908, 265,849,598; 1909, 268,428,392; 1910, 238,712,244. Tea production in 1908, 7,409,974 kwan; sugar, 197,748,974 kwan (one kwan=8.267323 lbs.). The production of silk cocoons is very important. Livestock in 1908: Cattle, 1,297,974; horses, 1,494,506; sheep, 4085; goats, 82,352; swine, 284,729. In 1908 about 60 per cent. of the population was dependent on agriculture.

MINING. Some of the mining products were as follows in 1908: Gold, 959,441 momme (one momme=3.75 grammes); silver, 32,846,707 momme; copper, 68,998,195 kin (one kin=1.3228 lbs.); lead, 4,850,501 kin; iron, 12,105,526 kwan; manganese, 18,550,574 kin; sulphur, 55,699,100 kin; coal, 14,825,363 tons.

MANUFACTURES. Manufacturing industries, especially in textiles and iron and steel, have developed rapidly. In 1908 there were 86 cotton mills, with 75,225 employees, 1,403,034 spindles, and a yarn output of 42,864,262 kwan. Output values in that year included: Silk goods, 94,799,152 yen; mixed silk and cotton, 21,632,156; cotton, 100,654,814; matches, 10,741,886; earthenware, 10,733,983; European paper, 13,690,983; matting, 11,071,757; oil, 10,019,007; lacquered ware, 7,665,126; leather, 7,171,733.

COMMERCE. Imports and exports of merchandise and of specie and bullion have been valued in thousands of yen as follows:

	Imports			Exports		
	Mdse.	S. & B.		Mdse.	S. & B.	
1872	26,175	.....		17,027	.....
1892	71,326	.....		91,103	.....
1902	271,731	.....		258,303	.....
1906	418,784	47,211		423,755	25,784	
1908	436,257	17,544		378,246	3,773	
1909	394,199	79,588		413,113	6,584	
1910	464,234	17,672		458,429	25,175	

Exact figures for 1909 and 1910 were: Imports of merchandise, 394,198,843 and 464,233,808 yen; of specie and bullion, 79,587,502 and 17,671,797; exports of merchandise, 413,112,511 and 458,428,996; of specie and bullion, 6,584,327 and 25,175,091. The principal imports were valued as follows in 1910 in thousands of yen (figures in parenthesis for 1909): Raw cotton, 159,322 (108,308); machinery, 23,619 (15,581); oilcake, 19,888 (24,357); iron and steel mfrs., 17,122 (15,934); petroleum, 14,303 (11,657); wool, 13,520 (9092); sugar, 13,347 (13,367); cotton goods, 11,854 (12,686); woolen goods, 10,057 (8758); iron, 9838 (8433); ammonium sulphate, 9066 (5924); soybeans, 8978 (10,546); rice, 8644 (13,586); woolen yarn, 5951 (5041). Similar figures for exports: Silk, 130,833 (124,243); cotton yarn, 45,347 (31,991); silk

goods, 34,138 (35,846); cotton goods, 26,034 (18,961); copper, 20,806 (21,071); coal, 16,300 (17,297); tea, 14,542 (13,082); straw manufactures, 13,610 (12,297); matches, 10,390 (11,625); floss silk, 8417 (7552); sugar, 6098 (5083); rice, 5900 (5867); earthenware, 5514 (5258). The values of imports and exports of merchandise by countries are shown in the following table in thousands of yen:

Countries	Imports		Exports	
	1909	1910	1909	1910
Great Britain	86,277	94,701	27,092	25,781
Germany	40,217	43,946	7,955	11,168
France	5,558	5,405	41,520	44,925
Rest of Europe....	18,071	19,711	19,577	26,696
British India	65,167	106,361	14,425	18,713
China	46,886	68,670	73,087	90,037
Dutch East Indies	18,631	18,880	3,071	3,134
Korea	14,139	8,592	26,997	17,450
French Indo-China	6,372	4,538	439	341
Hongkong	628	675	21,675	23,460
Rest of Asia.....	24,692	18,543	28,887	33,145
United States	54,043	54,699	131,547	143,702
Other countries ..	15,418	19,713	16,839	19,877
Total	394,199	464,234	413,113	458,429

SHIPPING. Entrances in the oversea trade in 1910 aggregated 11,168 vessels of 20,173,787 tons, of which 7829 (9,348,659 tons) were Japanese, 1971 (8,160,648) British, 414 (1,389,614) German, and 199 (1,397,629) American. On January 1, 1911, the merchant marine consisted of 2518 steamers of 1,233,785 tons, and 6337 sailing vessels of 412,859 tons; in addition, there were small native sailing vessels to the number of 21,470, aggregating 300,069 tons.

COMMUNICATIONS. Railways in operation March 31, 1909, aggregated 5020 miles, of which 4542 were state (including 271 in Formosa), and 478 private (in 1908, 4453 state and 445 private). The total mileage in 1910 is reported at 5150. An extensive plan was adopted in 1911 for state railway construction, and, more especially, improvement, including the broadening of the gauge. At the end of 1911 it was estimated that more than 5500 miles of railway were open in Japan, with 271 miles in Formosa and 25 miles in Sakhalin. The new construction, reported unofficially, was about 450 miles. The most important event of the year was the opening to traffic of the line from Nagoya to Haichioji, near Tokyo. This line was reported as 224 miles long and represents an outlay of £3,500,000. There are 95 tunnels, with a total length of 113,378 feet. The tunnel on the Sasago Pass, over two miles long, is the longest tunnel in Japan, and there are 350 bridges, with a total length of 24,265 feet. The Torii tunnel, situated 3189 feet above sea-level, is the highest point reached on any Japanese railway. The construction work has been attended by great difficulties, as the line traverses mountainous country almost entirely. Telegraphs (1910), 3952 offices, with 36,815 kilometers of line and 162,259 of wire; post offices, 7525.

FINANCE. The monetary unit is the yen, worth 49.8 cents (0.75 gramme of pure gold). Revenue and expenditure in thousands of yen have been as follows in fiscal years ended March 31:

	1906	1907	1908	1909	1910
Rev.	535,256	530,448	857,084	794,939	677,449
Exp.	420,741	464,276	602,401	636,361	532,894

Budget for the fiscal year 1911: Revenue: ordinary, 486,793,876 yen; extraordinary, 47,509,985; total, 534,303,861; expenditure: ordinary, 417,682,876 yen; extraordinary, 116,620,985; total, 534,303,861. For the fiscal year 1912 the budget showed ordinary receipts estimated at 494,916,497 yen and extraordinary at 73,987,419; ordinary expenditure, 410,141,977, and extraordinary, 158,762,039, estimated revenue and expenditure balancing at 568,903,916 yen. The larger estimated ordinary receipts for 1912 included: Excise, 128,814,550 yen; land tax, 75,072,765; monopolies, 61,346,402; customs, 50,514,465; posts and telegraphs, 48,589,725; income tax, 32,968,278; stamps, 25,026,150. The larger estimated expenditures for 1912: Finance, 187,478,214 ordinary and 40,880,764 yen extraordinary (including 155,531,860 for the debt); war, 76,371,236 and 22,021,133; navy, 40,746,338 and 46,063,392; communications, 56,889,910 and 20,862,073; interior, 11,828,477 and 19,041,202; justice, 11,722,752 and 765,076; agriculture and commerce, 7,323,853 and 8,087,229; public instruction, 9,032,170 and 801,113; civil list, 4,500,000. Public debt March 31, 1911: Internal, 1,203,179,400 yen; external, 1,447,215,716; total, 2,650,395,116 yen. In the fiscal year 1911 there was a readjustment of the tax system with a view, on the one hand, of favoring the development of the country's economic possibilities, and, on the other, of rendering more equitable the incidence of taxation.

ARMY. The Japanese army is recruited by conscription and the contingent available annually amounts to about 500,000 men, from which recruits may be sent to the active army or *geneki*, where they serve with the colors for two or three years, and with the first active or reserve army, known as the *yobi*, where the remainder of the seven and one-third year period of service is passed. They then spend 10 years in the second reserve or *kobi*, and later are enrolled in national army, or *kokumin*, until the age of exemption is reached. The active army is held in readiness for foreign service, while the national army is organized for home defense, and the militia as an auxiliary force, though the latter may be drawn upon to supply deficiencies in the first reserve. The complete success of this scheme of organization has been conceded, and for ability to turn out a large and well-equipped army ready for service Japan stands unrivaled. In fact, so well developed has been the general scheme for the organization of the Japanese army that the changes made from time to time are of a minor character rather than radical in nature. The active army and guard which comprise 19 divisions were to be increased, it was stated in 1911, by 2 divisions for service in Korea. While service is compulsory in the empire proper, it was not proposed to have conscription in Korea. During the year 2 additional brigades of cavalry, the third and the fourth, were being formed so as to remedy one of the very apparent weaknesses of the Japanese army. Furthermore, it was proposed to increase the heavy field artillery by 2 brigades. This portion of the service was to be armed with 4-inch guns and 4-inch and 6-inch howitzers. During the year considerable progress was made in aeronautics, and aeroplanes of various types were purchased for the use of the army.

Returns for the peace strength of the army,

considering only the officers and men serving with the colors, published in military journals, gave the distribution and numbers of troops as follows: Infantry 149,402, cavalry 4585, field artillery 18,918, foot artillery and coast artillery 6889, technical troops 16,727, train 11,427, sanitary troops 3484; total peace strength 230,000. The fighting strength of the three arms of the service, namely, the infantry, cavalry, and artillery on mobilization, considering only the existing organization, was estimated as follows: Infantry rifles 228,000, cavalry sabres 14,550, field guns 954; sabres per thousand infantry bayonets 63.81, field guns per thousand infantry bayonets 4.18, fully trained reserves available for passing from peace to war footing 1,000,000.

NAVY. On December 1, 1911, Japanese warships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, were as follows (exclusive of transports, colliers, repair ships, converted merchant vessels, etc., vessels not actually begun or ordered, though authorized, and vessels over twenty years old, unless reconstructed and rearmed since 1905): 2 dreadnoughts built, of a combined displacement of 39,150 tons, and 2 building, of 41,600 tons; 11 first-class battleships built, of 152,548 tons; 2 coast defense vessels built, of 9086 tons; 4 battle cruisers built of 56,700 tons, and 4 building, of 110,000 tons; 9 armored cruisers built, of 81,400 tons; 2 cruisers (above 6000 tons) built, of 13,130 tons; 8 cruisers (6000 to 3000 tons) built, of 30,303 tons, and 3 building of 15,000 tons; 5 cruisers (3000 to 1000 tons) built, of 9158 tons; 58 torpedo-boat destroyers built, of 22,607 tons, and 2 building, of 1200 tons; 59 torpedo boats built, of 5560 tons; 10 submarines built, of 1726 tons, and 3 building, of 950 tons; total, 421,369 tons built and 168,750 building. Aggregate main batteries of the larger vessels were: The 2 dreadnoughts built, 8 12-inch and 24 10-inch guns; the 2 dreadnoughts building, 24 12-inch guns; the 11 battleships built, 36 12-inch and 6 8-inch guns; the 4 battle cruisers built, 16 12-inch and 16 8-inch guns; the 4 battle cruisers building, 32 13.5-inch guns; the 9 armored cruisers built, 32 8-inch guns and one 10-inch gun. The dreadnought *Satsuma* was completed in April, 1910; the dreadnought *Aki* in April, 1911; the dreadnought *Kawachi*, launched in October, 1910, and the dreadnought *Settsu*, launched in April, 1911, are to be completed in 1912. The cruiser *Kurama* (14,600 tons, 4 12-inch and 8 8-inch guns) was completed in February, 1911. The principal characteristics of the *Aki* and *Kawachi*, respectively, are: Designed speed, 20 and 20.5 knots; displacement, 19,800 and 20,800 tons; length, 460 and 500 feet; beam, both 84; draft, both 27.5; battery, 4 12-inch and 12 10-inch for *Aki* and 12 12-inch and 10 6-inch for *Kawachi*; torpedo tubes, 5 each; maximum thickness of armor belt, both 9 inches. Personnel, December 1, 1911, 47,167 officers and men. See NAVAL PROGRESS.

GOVERNMENT. The executive authority rests with the emperor, acting through a cabinet of ministers, appointed by and responsible to himself. The legislative power is vested in a parliament, or imperial diet, of two chambers, the House of Peers and the House of Representatives. Representatives, 379 in number, are elected by male subjects having attained the age of twenty-

five and possessing certain property qualifications. The emperor in 1911 was Mutsuhito, who was born at Kyoto, November 3, 1852, and succeeded his father, Komei Tenno, February 13, 1867. Heir-apparent, Prince Yoshihito, born at Tokyo, August 31, 1879. The failure of the ministry of Gen. Marquis Katsura Taro (formed July 14, 1908) to check the increase of taxation led to the ministry's resignation, August 25, 1911. A new ministry, formed August 30, was as follows: Premier, Marquis Saionji Kinmochi; navy, Vice-Admiral Baron Saito Minoru (who was retained from the preceding ministry); communications, Count Hayashi Tadasu; justice, Mr. Matsuda; interior, Viscount Hara; foreign affairs, Viscount Uchida Yasuya (who at the time of his appointment was ambassador to the United States, the portfolio of foreign affairs being temporarily assumed by Count Hayashi); agriculture and commerce, Baron Makino Nobuaki; war, Lieut-Gen. Ishimoto Shinroku; public instruction, Mr. Haseba; finance, Mr. Yamamoto.

HISTORY

THE ANARCHIST TRIAL. The most conspicuous event in the early part of the year was the trial of the Kotoku conspirators, who were accused of plotting against the life of the emperor. It was reported in the newspapers that they had confessed to a plot which aimed at the assassination not only of the emperor, but of several ministers of state. The trial was held in the Court of Cassation. It was charged that the men concerned in the plot were Socialists, but later it was pointed out that they were anarchists. The trial was held in secret, but was witnessed by many Japanese subjects and by members of the diplomatic corps. The court imposed the death sentence upon Dr. Kotoku, his wife, and twenty-two fellow-conspirators. Twelve of the convicted anarchist conspirators, including Dr. Kotoku and his wife, were executed on January 24, but the sentences of the others were commuted to imprisonment for a term of years. There was considerable criticism of the Japanese authorities for trying the anarchists in secret. The answer of the government was that an open trial would have tended to hinder the suppression of anarchy. The premier in an interview on this subject pointed to the fact that a great many small newspapers would have done their best to inflame the popular mind against the existing order of things.

PARLIAMENT. In February, the Katsura cabinet formally entered into an alliance with the Sei-yu-kai (Liberals), thus securing a majority in the Diet. Progress was made towards effective factory legislation by the passage in March of a factory act, which sought to remedy specific abuses in connection with the employment of young persons. It was learned toward the end of August that the Katsura cabinet would resign. Popular opinion had turned against it, especially on the ground that it strengthened the bureaucracy through the appointment of new peers and the additions to the imperial nominees in the upper house. The programme on which it had come into power had been completed. The cabinet resigned, and on August 30, a new cabinet under Marquis Saionji was announced. The chief difference between

the incoming and outgoing cabinets was in their domestic policy. One of the most significant appointments was that of Viscount Hara to the ministry of the interior. He was a member of the Saionji cabinet of 1906-1908, and had been a leader of the Sei-yu-kai. His policy was likely to be far more liberal than that of the previous cabinet, which had been criticised for its attitude toward socialism, creating a sympathy with the movement which had not existed before. Viscount Hara in his previous administration had been criticised for going to the opposite extreme, that is, for being too lenient to the Socialists and agitators. The main question before the new cabinet was the financial problem, which fell to the hands of the new finance minister, Mr. Yamamoto, who was at one time governor of the Bank of Japan. On the one hand, people were complaining of the heavy burden of taxation and, on the other hand, the need of increased expenditures for the army and navy was urged. The new ministry, however, declared that it would not make any fundamental change in the government's policy which would aim as heretofore at improving the national credit and developing industries. It was announced early in December that the cabinet had agreed on a naval programme involving the expenditure of 92,500,000 yen for a battleship and three super-dreadnoughts.

FOREIGN RELATIONS. Marquis Komura delivered an important speech on Japan's foreign policy on January 24, in the House of Representatives, in the course of which he referred to the additional strength and solidity of the Anglo-Japanese alliance, and sought to disarm the suspicion that had been shown in certain quarters as to the recent understanding with Russia. He said: "I have no hesitation in positively declaring that it [the Russo-Japanese agreement] has for its sole object the maintenance of the status quo in Manchuria and of enduring peace in the Far East by confirming and supplementing the provisions laid down in the former convention." He also announced the desire of the imperial government to conclude new treaties as soon as possible with foreign powers on an entirely equal footing. There were, as usual, many reports of friction between the United States and Japan. These were denounced by Mr. Taft as malicious and mischievous, and by Mr. Knox as merely sensational. On the other hand, Baron Uchida referred to them as "merely irrational yet persistent war talk." The new treaty with the United States was ratified by the United States Senate, February 24. It was accompanied by a note from the Japanese ambassador, explaining that the present arrangement, by which Japan herself controls the emigration to the United States, would be continued. (See **ARBITRATION, INTERNATIONAL.**) It was announced on June 20 that Russia would agree to the Japanese proposals to settle all claims resulting from the war and that the troublesome question of the three hospital ships seized by Japan was adjusted. An agreement for the settlement of these outstanding questions was signed in August. On August 19, Japan and France entered into a commercial and navigation agreement, whereby the latter applied her minimum tariff to certain Japanese products, and Japan granted tariff reductions on fifteen exports. On July 13 a new agreement between Great Britain and Japan revising the terms

of the alliance and renewing it for a period of ten years, was signed. The chief change is the insertion of a new provision to the effect that if either party concluded a treaty of general arbitration with a third power, it is not to be inferred that anything in the present agreement shall constrain such contracting party to go to war with the third power. Several articles were omitted as superseded or superfluous. The renewal of the treaty, so far as Great Britain was concerned, marked a new departure in that for the first time the Canadian ministers were consulted in regard to it. The objects of the agreement were the same as before, namely, the consolidation and maintenance of the general peace in the regions of eastern Asia and India; preservation of the common interests of all powers in China by insuring the independence and integrity of the Chinese empire, and the principle of equal opportunities for the commerce and industry of all nations in China; the maintenance of the territorial rights of the high contracting parties in the regions of eastern Asia and India, and the defense of their special interests in the said regions.

JAPANESE-AMERICAN TREATY. See UNITED STATES, *Treaties*, and JAPAN.

JAPANESE INTERNATIONAL EXPOSITION. See EXHIBITIONS.

JASTROW, MORRIS, Jr. See LITERATURE, ENGLISH AND AMERICAN, *Religion*.

JAVA. An East Indian island; a Dutch colonial possession. Area of Java and Madura, 50,775 sq. miles; population, 30,098,008. Batavia (138,551 inhabitants), the capital, is also the capital of the Dutch East Indies (q. v.). Imports (1908), 183,449,000 guilders; exports, 289,386,000. C. W. A. van Rinsum was the resident in 1911.

JEASSU, Lidj. A grandson of the Negus Menelek, emperor of Abyssinia, proclaimed emperor on May 15, 1911. His appointment was due to the death of Ras Tassama, the regent who was appointed in 1910, after Menelek had been incapacitated by paralysis. The newly proclaimed emperor was born in 1897, and is the son of Menelek's daughter, Schoagash.

JELLY, GEORGE FREDERICK. An American alienist. He was born in 1843 and graduated from Brown University in 1864. He studied at the Harvard Medical School and began active practice in Springfield, Mass., making a specialty of nervous and mental diseases. In 1869 he became assistant physician to the asylum at Waverly, Mass., and in 1871 was chosen president of this institution. He relinquished this in 1879 and took up private practice in Boston. On the organization of a State board of insanity in 1898 he was made its first chairman. His services were extensively sought as consultant and expert in court. For many years he acted in the latter capacity for the most of the important cases not only in Massachusetts but in other States.

JELUTONG. See CHEMISTRY, INDUSTRIAL.

JENSEN, WILHELM. A German novelist, died November 24, 1911. He was born at Heiligenhafen in Holstein in 1837. He was educated in the gymnasium at Kiel and afterwards studied medicine at the universities of Jena, Würzburg, and Breslau. He settled at Munich and devoted himself to literature. Here he edited the *Schwabische Volkszeitung* for one year. He then removed to Flensburg, where he edited a

paper for three years, then to Kiel and later to Freiburg. He finally made his home at Munich, where he remained until the time of his death. During this entire period he was engaged in the composition of stories and novels. His earlier stories were notable for their descriptions of country scenes. Among these are *Die braune Erica* (1868) and *Eddy-stone* (1872). With *In der Fremde* (1887), he dealt with city and the higher social life. He later returned to his earlier manner in *Im Zwing und Bann* (1892). He was one of the most prolific of German writers and he produced nearly 160 printed volumes. Many of these are novels, but they also include works on a variety of literary subjects and works of travel. He also published a volume of poems. His last work includes the romance *Der Schleier de Maja* (1902) and *Gäste auf Hohenaschau* (1904).

JERSEY CITY. See NEW JERSEY, and MUNICIPAL GOVERNMENT.

JEWS. This article contains statistical matter relating to the Jews throughout the world and some notes of important political events concerning them during the year. The nature of the subject prevents exhaustive treatment.

According to estimates made by various authorities, including the *American Jewish Year Book*, the total number of Jews in the world in 1911 was about 13,000,000. Of these there were in Russia 6,243,712; in Austria-Hungary 2,076,378; in the United States 2,044,672; in Germany 697,862; in Turkey 463,686, including 78,000 in Palestine. Other countries in which there are 100,000 or more are Morocco, Holland, and France. In the British empire there are about 995,000.

The immigration of Jews into the United States in the fiscal year 1911 was 91,223. Of these by far the larger number came to the port of New York. The Jews in the United States, according to estimates made by the *American Jewish Year Book*, in 1910 were 2,044,792. Of these 905,000 were in New York, 150,000 in Pennsylvania, 110,000 in Illinois, and 7000 in New Jersey. They are found in every State of the Union.

The chief historical event connected with the Jews in 1911, as regards the United States, was the abrogation of the treaty of 1832 with Russia as a result of the refusal of that country to admit American citizens who were Jews. A discussion of this will be found in the article UNITED STATES, paragraph *Foreign Relations*.

In Russia restrictions against Jews continued to be made during the year, and Jews were expelled from many cities. On February 9 the Duma, by a vote of 208 to 138, declined to express an opinion for or against the bill providing for the abolition of the Jewish Pale. On February 12 a conference of all the Russian nobility demanded the unconditional expulsion of Jews from government and military service; that Jews be denied employment in administrative and judicial positions, even if converted; that Jews be separated from Christians in schools; that the integrity of the Pale be maintained, and that the privileges of Jewish honorary citizens be restricted.

In Palestine the Jewish communities continued to increase under the tacit approval of the government of Turkey. In other countries of Europe there were no particular events of

unusual interest relating to the Jews. Persecutions in Rumania subsided, although the government passed new restrictions against Jews becoming commissioned officers in the army. In Austria nine Jews were elected to the Chamber of Deputies on June 30.

JOHNS HOPKINS UNIVERSITY. An institution of higher learning and graduate research, founded in 1876 at Baltimore, Md. The enrollment in all departments of the university in 1911-12 was 787, distributed as follows: Graduate students, 212; candidates for the degree of M. D., 355; physicians attending special courses, 40; and undergraduates, 180. There were in addition 116 persons attending the college courses for teachers given at late afternoon hours. There were no important changes in the faculty during the year. Among the benefactions received was a gift of \$250,000 from the General Education Board. A condition of this gift was that \$750,000 additional should be secured by the university and its friends. This condition was complied with and \$20,000 additional was subscribed. A new departure in the history of the university was the inauguration of a summer session of six weeks, which in the summer of 1911 was attended by 335 persons, mostly teachers living in Baltimore, and other parts of Maryland. No new buildings were completed during the year, but a considerable enlargement of the botanical laboratory and greenhouse at the new site was begun. The productive funds of the university amounted to nearly \$5,000,000. The income from all sources in 1910-11 was about \$350,000. The library contains about 150,000 volumes. The president is Ira Remsen, Ph. D., LL. D.

JOHNSON, CHARLES F. United States senator from Maine. He was born in Winslow, Me., in 1859 and graduated from Bowdoin College in 1879. He taught school, in the meantime studying law, and was admitted to the bar in 1886. He continued in practice in Waterville until his election to the Senate. In 1892-4 he was Democratic candidate for governor of the state. In 1905-7 he was a member of the State legislature. He was a delegate to the Democratic National Convention in 1904. In January, 1911, he was elected to the United States Senate to succeed Senator Eugene Hale for the term beginning March 7, 1911. His term of service will expire in 1917.

JOHNSON, FREDERICK FOOTE. An American Episcopal clergyman, elected on May 18, 1911, bishop-coadjutor of South Dakota. He was born in Newtown, Conn., in 1866, and graduated from Trinity College in 1894. He became priest in 1897 and was rector at Glenwood Springs, Col., in 1897 and filled several pastorates in that State until 1908. In 1904-5 he was diocesan missionary to western Massachusetts. He was consecrated assistant bishop of South Dakota in 1905.

JOHNSON, TOM LOFTIN. An American public official and financier, died April 10, 1911. He was born in Scott county, Ky., in 1854. He was christened Thomas Loftin by his parents, but throughout his life he was known by the more familiar designation, Tom L. When he was still very young his parents removed to Staunton, Va. While still a youth he accumulated a small sum of money and with it went to Louisville where he began work for a street railway company. In a short time he removed to Indianapolis where he obtained an interest

in the old street railway company and within a year or two became its manager. Before he was twenty-two years old he owned a controlling interest in the stock of the company and was worth half a million dollars. He next bought an interest in a small street railway in Cleveland in the outskirts of the city. This he consolidated with another line and within a year was in control of a trunk line system. He acquired iron foundries and street car lines in other cities and began to take an active interest in politics. In 1888 he ran for Congress in the Cleveland district on a free trade and single tax platform, but was defeated. He again tried for election in 1890 and was elected by a large majority. Two years later he was reelected by a majority of 3200 in a Republican district. In 1901 he was elected mayor of Cleveland and served four successive terms. His administration of the affairs of that city created wide attention from his attempts to put into effect many of the reforms advocated by Henry George. During his entire administration he carried on a struggle to secure a three-cent fare on the street cars of the city. This he finally succeeded in doing, but the venture did not turn out to be profitable. His principal work as mayor of Cleveland was the securing of a franchise tax by which the city obtained a legal valuation of the street railway properties. In 1910 he again ran for the office of mayor, but was defeated. In 1903 he was nominated by the Ohio Democrats as governor, but was decisively beaten. He supported Mr. Bryan in three campaigns in which the latter was a candidate for President, but he was not an advocate of the candidate's free silver ideas. Several years before his death he announced that he had lost his entire fortune and was obliged to begin life anew. He was an inventor of several street railway devices which were of considerable profit.

JOHNSTON, MARY. See *LITERATURE, ENGLISH AND AMERICAN, Fiction.*

JOHNSTON, SAMUEL. An American inventor, died April 20, 1911. He was born in Shelby, N. Y., in 1825 and was educated in the common schools. He was the first person to invent and manufacture a reaping machine capable of handling all kinds of grain successfully. This he perfected in 1860. He also invented a corn planter, rotary and disk harrows, corn harvesters, self-raking reapers and roller forging mills. In 1868 he organized the firm of Johnson, Huntley & Co. and began the manufacture of the famous Sweepstake reaper. He was the inventor of a metal working process by which finished articles are produced in duplicate.

JOHORE. A native state (under British control) in the Malay Peninsula, covering about 9000 sq. miles and having about 200,000 inhabitants. Johore Bahru is the chief town. Revenue (1910), 3,323,000 Straits Settlements dollars; expenditure, 2,718,000; debt, 11,676. The reigning sultan is H. H. Ibrahim.

JONES, GEORGE WILLIAM. An American mathematician and educator, died October 30, 1911. He was born in East Corinth, Me., in 1837 and graduated from Yale College in 1859. He taught mathematics in several institutions in Connecticut and New York until 1868 when he was appointed professor of mathematics in the Iowa State College. In 1877 he was chosen assistant professor of mathematics at Cornell University and became in turn associate professor and professor. He was professor emeritus

at the time of his death, having retired from active teaching in 1907. He was the author of a *Treatise on Algebra* (1882); *Drill Book in Algebra* (1892); *Some Proofs in Elementary Geometry* (1904); and other text-books on mathematics.

JOURNALISM, SCHOOLS OF. See **UNIVERSITIES AND COLLEGES.**

JUNGFRAU. See **SWITZERLAND.**

JUPIITER (Collier). See **NAVAL PROGRESS, Propulsion.**

JUVENILE COURTS. The movement for the establishment of special courts for the hearing of cases involving children continued to make headway during the year. Historical study showed that the first suggestions for such a court were made by J. J. Kelso, of Toronto, Canada, in 1893. An act providing for such courts was passed in the Ontario Assembly before the juvenile court was established in Chicago, in 1898. Nevertheless, it has been the development of the juvenile court in the United States that has set the standard and given the impetus to the general movement for the entire world. The real necessity for such courts was brought out clearly by a statement made by Ernest K. Coulter, clerk of the Children's Court of New York county, that of the 80,000 children who had been brought before that court the vast majority are normal from the standpoint of their surroundings. He said that the court handled about 10,000 cases per year; of these practically one-half are due to offenses growing out of a child's normal instincts for play. He thought that a minimum of about two per cent. of these children were mentally defective. The juvenile court, with its probation system, makes it possible to handle all normal cases in an intelligent, effective manner, looking to the reclaiming of the child for future useful citizenship. The present system, however, does not as yet make adequate provision for the small minority of mentally defective children who very often are placed in ordinary reformatory institutions. Mr. Coulter thought that there were many cases of such defectives who had been sent to reformatories to become indifferent or hardened criminals, who with proper medical attention and treatment could have been cured.

KENTUCKY. The constitutionality of the juvenile court law of Kentucky was called in question by means of a case in which a girl was committed to a convent by the county court of Jefferson county. The law was attacked on three grounds: That the creation of the juvenile court was not authorized by the constitution; that the judgment of the court being for an indeterminate period should be subject to an appeal under criminal practice; that the law was unconstitutional in that it denied to the delinquent the right of trial by jury, thus depriving him of liberty without due process of law. The court overruled all these objections. The main point upon which the court laid stress was that the act did not provide for criminal proceedings, the service of the government being called in merely to protect children who through misfortune or lack of parental care are unable and unwilling to care for themselves.

Considerable criticism was passed upon the judge conducting the juvenile court at Louisville, because of his appointment of a probation officer not deemed suitable. This caused a split in the advisory board of the court and public meetings of protest.

WASHINGTON. A new juvenile court law in Washington provided for the appointment of juvenile court officers by the presiding judges, but with the condition that all such appointments must be approved by the county commissioners. These latter were given power to fix the number of such court officers and their salaries. In both Spokane and Seattle the judges reappointed former officers, but the county commissioners refused their assent. This was pointed to by students of juvenile courts as an illustration of the evil of submitting such administrative institutions to undue political influence. Where such appointments are likely to be made in payment of political debts the greatest efficiency is not possible.

AUXILIARY AGENCIES. Undoubtedly one of the reasons for the success of the juvenile court is the interest that has been taken in it by numerous volunteer organizations, very largely of women, who have willingly sacrificed time and effort to reclaim neglected or wayward children. One of the most successful of these volunteer groups is the juvenile court auxiliary at San Francisco, organized in 1910, with a membership in 1911 of nearly 700. It declared its general purpose to be the betterment of child life. It renders friendly service in connection with the juvenile court and probational work; and it carries on a continuous campaign of education by means of public meetings and publications.

INTERNATIONAL CONGRESS. The first International Congress for juvenile courts was held at Paris, June 20-July 1. It was attended by two representatives from the United States. One of the striking differences between the attitude of many foreign representatives and that of Americans was that the former looked upon the juvenile court as a special form of criminal procedure, whereas the latter viewed the court mainly as a child-saving agency, entirely apart from any suggestions of crime. One of the questions dealt with the organization of juvenile courts. The congress held that below a certain age, to be determined by law, no judicial procedure should be instituted against a child. All children under this age charged with violating the law should be brought before a special court; this court should consist of a single judge, who should give special study to the needs of children and should continue in service long enough to become experienced and skillful; the judge should employ only measures which promise protection and assistance, never applying punitive measures; minors should be examined by a physician; they should have a legal defender; the public and reporters should be excluded from this special court. The congress also agreed that children might be returned to their families, placed under probation officers, or placed in a suitable institution. It was agreed that negligent parents should be punished.

A second question for discussion related to the rôle played by charitable institutions and societies. It was voted to recommend that before the first hearing the representative of such an institution be permitted to visit the arrested child in its place of detention; that such representative may be present at the hearings and speak for the child; that the court have a free clinic among such institutions; that each institution be under both administrative and judicial control by the State; that it be legally authorized to pay part of its expenses from money

collected from parents or from public subsidies; and that if it finds it cannot control or reform a child it may appear before the court and secure a transfer to some other institution better adapted to the child's needs.

A third question related to probation officers. It was agreed that this service is desirable for all neglected and delinquent children, who cannot properly be treated at home; or who can be put on probation after reform training; the court should decide when this method is applicable and be free to choose the most suitable agents; so far as possible these agents should be specially trained; agents for child-saving institutions should be selected from the probation officers. The congress held that children should be kept under supervision long enough to secure reformation, even though this required supervision until majority. Moreover, probation officers should report frequently in order that desirable changes in the mode of treatment might be ordered.

KAISER WILHELM LAND. See GERMAN NEW GUINEA.

KAMERUN. A protectorate, under German control, on the Gulf of Guinea, covering 190,600 sq. miles and with about 3,500,000 inhabitants. Buéa is the capital. Imports (1909), 17,722,598 marks; exports, 15,701,176. Tonnage entered (1909), 1,634,654. Miles of railway, 320. Revenue and expenditure balanced (1910-11) at 9,281,000 marks. Governor (1911), Dr. Gleim. See MOROCCO, *Franco-German Treaties*.

KANEM. See FRENCH EQUATORIAL AFRICA.

KANSAS. POPULATION. According to the Thirteenth Census, taken in 1910, the population of the State in that year was 1,690,949, as compared with 1,470,495 in 1900, an increase of 220,454 or 15 per cent., in the decade. The largest cities with their population in 1910 and 1900 are as follows (the figures in parenthesis are for 1900): Wichita, 52,450 (24,671); Topeka, 43,684 (33,608); Kansas City, 51,418 (22,331).

AGRICULTURE. The Thirteenth Census included statistics of agriculture in the State. They are of date of April 15, 1910. On that date the number of farms in the State was 177,841, as compared with 173,098 in 1900. The land in farms was 43,384,799 acres, as compared with 41,662,970 acres in 1900. The improved land in farms was 29,904,067 acres, compared with 25,040,550 acres in 1900. The average acreage per farm was 244, as compared with 240.7 in 1900. The total value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$2,039,389,910, as compared with \$864,100,286 in 1900, or a remarkable increase of \$1,175,289,624 in the ten-year period. The average value of all property per farm in 1910 was \$11,467, as compared with \$4992 in 1900. The average value of land per acre was \$25.45, as compared with \$12.77 in 1900. Of the 177,841 farms in the State in 1910, 112,443 were operated by owners and managers and 65,398 by tenants. Of the farms operated by owners, those free of mortgage were 60,582; those under mortgage, 49,249. The native white farmers numbered 150,346; the foreign-born white 25,804, and negro or other non-white, 1691. Of the non-whites, 157 were Indians, and 2 were Japanese. The domestic animals of all kinds in the State in 1910 were valued at \$253,528,577, compared with a value in 1900 of \$190,956,936. The

cattle numbered 3,079,403, valued at \$80,557,443; horses and colts, 1,147,056, valued at \$112,758,108; mules, 208,409, valued at \$25,629,418; swine, 3,050,157, valued at \$24,708,885; sheep and lambs 272,475 valued at \$1,209,931. Poultry of the various kinds numbered 15,736,038, valued at \$7,377,469. The acreage, production, and value of the principal crops will be found for 1910 and 1911 in the following table:

		Acreage	Prod., bu.	Value
Corn	1911	8,700,000	126,150,000	\$79,474,000
	1910	8,950,000	170,050,000	76,522,000
Wheat	1911	4,810,000	51,387,000	46,762,000
	1910	4,490,000	63,236,000	53,118,000
Oats	1911	2,000,000	30,000,000	13,500,000
	1910	1,675,000	55,778,000	18,965,000
Rye	1911	18,000	198,000	160,000
	1910	20,000	280,000	204,000
Potatoes	1911	80,000	1,760,000	1,866,000
	1910	82,000	4,674,000	4,207,000
Hay	1911	1,649,000	1,402,000	13,880,000
	1910	1,792,000	2,061,000	16,076,000

a Tons.

MINERAL PRODUCTION. The minerals products of the State in 1910 were valued at \$28,304,191. Of this, the coal produced was valued at \$7,914,709; natural gas, \$7,755,367; zinc, \$1,103,760; clay products, \$2,261,527; petroleum, \$44,763. Other mineral products of the State include lead, salt, sand and gravel, and stone.

The coal production of the State in 1910, according to the figures of the United States Geological Survey, amounted to 4,921,451 short tons, valued at \$7,914,709. This was a decrease from the production of 1909, which was 6,986,478 short tons. The decrease was largely the result of coal strikes. During the year 80 per cent. of the men employed in the coal mines were on strike and the period of idleness exceeded that of activity. The number of men employed in the coal mines of the State during the year was 12,870, of whom 10,346 were idle during the strike. The average number of days worked was 148, and the average number of days idle was 153.

EDUCATION. The total population of school age in 1910 was 516,061. The total enrollment was 398,746. The average attendance was 291,329. The total number of teachers employed was 13,467. The average salary paid to male teachers per month was \$51.30 and to female teachers, \$49.11.

The legislature of 1911 provided for a minimum term of seven months and State aid to such districts as having levied four and one-half mills find it impossible to conduct a seven months' term. The appropriation for this purpose amounts to \$150,000. State aid is also granted to certain high schools which maintain normal training courses for teachers. There are 160 high schools receiving aid under this provision. Ninety-six high schools of the State have introduced domestic science and agriculture and receive \$250 State aid yearly. Two measures are now being advocated in the State—a larger unit of school organization and a small amount of State aid to be given annually to such rural schools as may reach the standard to be set by the department of education. This standard will include model school buildings in the matter of heating, lighting, and ventilating; proper equipment, well-kept grounds, and a library of a certain size, both general and reference, and a teacher who is the holder of a first-grade certificate. It is believed that such a recognition of

excellence on the part of the State would result in great good and in the rapid multiplication of the better type of rural schools.

FINANCE. According to the report of the State treasurer, there was a balance on hand July 1, 1909, of \$1,177,029. The total disbursements amounted to \$7,236,016. The balance remaining at the end of the fiscal year 1910, was \$1,026,165. The chief receipts were from the general revenue fund, the permanent school fund, and from the annual school fund. The total assessed valuation of the State in 1910 was \$2,752,107,678, and the total State levy of that year was \$2,889,712.

POLITICS AND GOVERNMENT

The legislature was in session in 1911, and the most important measures passed will be found in the paragraph *Legislation* below. On January 19, the legislature ratified the proposed income tax amendment. A resolution was passed submitting to the people the amendment establishing woman suffrage, but the amendment providing for the initiative and referendum was defeated by the Senate, although it had been passed by the House by a vote of 96 to 22. In April, primaries were held for the nomination of municipal officers of the State. The results were remarkable in the number of Socialist candidates who were nominated. In the elections held on April 5, the Socialists elected three of the five councilmen and the city attorney in Fort Scott. In Girard the Socialist mayor was elected. The chief contest was in Wichita, where the complete Socialist ticket was chosen at the primaries, but at the election not one of the candidates was elected. Two vacancies occurred in Congress as the result of the deaths of Alexander C. Mitchell of the Second district and Edmond H. Madison of the Seventh District. The election held to fill the vacancy in the Second district resulted in the election of Joseph Taggart, a Democrat. He was elected by a majority of about 1100. The district was formerly Republican. Not more than 50 per cent. of the normal vote was cast. Republican disaffection was caused by the refusal of the congressional committee to call a primary, the committee itself making the party nomination. So much criticism followed this action that the committee's nominee refused the nomination. A primary was then called, but an entrance fee of \$3000 was required by the committee. The only Republican to enter was the committee's former nominee, his defeat following at the election. The election in the Seventh district was held January 9, 1912, and resulted in the election of a Democrat, George W. Neely, of Hutchinson, the Republican majority of 5000 for the late Judge Madison being converted into a Democratic majority, on a light vote, of 1300. The district has been continuously Republican, until this election, since the defeat of Jerry Simpson, the Populist, in 1898.

LEGISLATION. Among the important measures passed at the session of the legislature of 1911, were the following: A law was passed governing investment companies doing business in the State (other than banks, trust companies, real estate, mortgage companies, and building associations). The statute requires them to disclose the character of their business, their financial condition, and it must be filed in writing with the secretary of the State, and they are prohibited from

selling stocks or bonds within the State until they are authorized to do so by the bank commissioner. A measure was passed prohibiting contributions to political campaigns by corporations and prohibiting others from receiving contributions. Newspapers are prohibited from printing campaign literature, unless over the signature of at least two officers of the campaign committee, or over the signature of an individual who becomes responsible therefor, and in such cases it is to appear as advertising. All persons are prohibited from paying newspapers or periodicals to induce them to advocate the claims of candidates for office editorially, and such publications are prohibited from receiving any money for such purposes. A law was enacted authorizing voters to express their preference of candidates for United States senators, and making candidates for the legislature bound thereby if they promise to be so bound in their canvass for election. A voluntary workmen's compensation act was passed. This is applicable to all hazardous employments, and gives a maximum compensation in case of death of \$3600, and in case of total disability of not to exceed \$15 a week for not more than ten years, with right of action therefor. Employers may choose as to whether they shall come under the act by filing such choice with the secretary of State, when it shall stand for one year and continue from year to year unless it is withdrawn by a sixty days' notice thereof. Employees are presumed to come in under the act unless they serve written notices before injury of their refusal. When action is brought to recover by those refusing the benefits of the law, it is no defense that the injured employee expressly or impliedly assumed the risk, nor that the injury occurred because of want of due care of a fellow-servant, nor that the injury was caused by contributory negligence of the employee. The law applies to all railroads, mines, quarries, and other works inherently dangerous. It does not apply to interstate business, nor to employers employing less than fifteen persons. The violation of the prohibitory liquor law was made a felony upon conviction of a second offense. This is punishable by one year in the penitentiary. A law was passed providing for the ouster of public officials guilty of immoral conduct, such as drunkenness and gambling, and for unfaithfulness in office. A sanitarium for tuberculosis patients was authorized. A measure was enacted, fixing weights and measures. A commission of three persons, known as the public utilities commission, was created. This commission has control of all railroads and other public utilities. It has power to fix the rates and charges of such utilities, to control their stock and bond issue and to make a valuation of the property of the utility used in interests fully under the control of the commission. Railroads are made liable for death or injury of their employees, irrespective of contributory negligence.

STATE GOVERNMENT IN 1911. Governor, W. R. Stubbs; Lieutenant Governor, Richard J. Hopkins; Secretary of State, Charles H. Sessions; Treasurer, Mark Tulley; Auditor, W. E. Davis; Attorney-General, John S. Dawson; Adjutant-General, C. I. Martin; Superintendent of Education, E. T. Fairchild; Superintendent of Insurance, Ike S. Lewis; Commissioner of Agriculture, F. D. Coburn—all Republicans.

JUDICIARY. Supreme Court: Chief Justice,

William A. Johnston; Associate Justices, Judson S. West, Silas Porter, Clark A. Smith, Rousseau A. Burch, Henry F. Mason, and Alfred W. Benson, all Republicans; Clerk, D. A. Valentine.

STATE LEGISLATURE, 1911. Republicans, Senate, 35; House, 71; joint ballot, 106; Democrats, Senate, 5; House, 53; joint ballot, 58; Independent, Senate, 0; House, 1; joint ballot, 1; Republican majority, Senate, 30; House, 17; joint ballot 47.

The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

KANSAS CITY. See BUILDING, and MUNICIPAL GOVERNMENT.

KANSAS-OKLAHOMA OIL FIELD. See PETROLEUM.

KANSAS, UNIVERSITY OF. An institution of higher learning, at Lawrence, Kan., founded in 1866. The number of students enrolled in the various departments of the university in 1911-12 was 2500. The faculty numbered 172. There were no notable changes in the faculty during the year. The endowment of the university amounts to \$150,000. It is supported almost entirely by State appropriations, which in 1910 amounted to \$413,820. The library contains about 70,000 volumes. The president is F. Strong, LL. D.

KANT. See PHILOSOPHY.

KARAFUTO. See SAKHALIN.

KAWACHI. See BATTLESHIPS.

KEDAH. A Malay state on the west coast of the Malay Peninsula; a British protectorate. Capital, Alor Star. Area, including the Langkawi group of islands, about 3150 sq. miles. Population (estimate), 219,000, chiefly Malays. The principal products are paddy and rice, tapioca, coconuts, pepper, fruits, and rubber. Opium is a government monopoly. The mining industry has declined. Cattle and buffaloes are raised; the number of cattle reported in 1908 was 30,000, since diminished by the rinderpest. The nominal ruler is (1911), Sultan Abdulhamid Halimshah ibni Ahmad Tajudin. British adviser and actual administrator, W. George Maxwell.

KEITH, WILLIAM. An American artist, died April 13, 1911. He was born at Aberdeenshire, Scotland, in 1839 and when about twelve years of age came to the United States. He was apprenticed to a wood engraver in New York and for some time worked on *Harper's Weekly* and *Harper's Monthly*. In 1859 he removed to California and began painting in water colors. He went abroad for study at various times, but for the most part lived in San Francisco. His entire collection of paintings was lost in the San Francisco fire of 1906. His reputation was made chiefly by his landscape paintings.

KELANTAN. A native Malay state under the protection of Great Britain. Area (estimate), 5000 sq. miles; estimated population, 300,000 (Siamese, 15,000; Chinese, 10,000). Shafi Mohammedanism is the prevailing religion. Capital, Kota Bharu, with about 10,000 inhabitants. The principal products are rice, coconuts, rattan, bamboo, pepper, tapioca, sugar-cane, and corn. The jungle yields valuable timber. Stock-raising is an important industry. The mines produce gold, galena, pyrites, and tin. Silk-weaving, boat-building, and brick-making are carried on. Imports (1909-10), 1,175,158 Straits Settlements dollars; exports, 1,473,413 (gold, 289,272), Revenue (1909-10), 370,959 Straits Settlements dollars; expenditure, 377,062.

There are few roads; internal communication is by means of the rivers. Kota Bharu connects by telegraph with Bangkok and Penang. A hereditary rajah administers the state under the direction of a British adviser (1911, J. S. Mason).

KENSICO RESERVOIR. See AQUEDUCTS.

KENTUCKY. POPULATION. According to the Thirteenth Census, taken in 1900, the population of the State in that year was 2,289,905, as compared with 2,147,174 in 1900, an increase of 142,731 or 6.6 per cent. in the decade. The principal cities with their population in 1910 and 1900 are as follows (the figures in parenthesis are for 1900): Louisville, 223,928 (204,731); Covington, 53,270 (42,938); Newport, 30,309 (28,301); Paducah, 22,760 (19,446).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. At that time the farms in the State numbered 259,185, as compared with 234,667 in 1900. The land in farms was 22,189,127 acres, as compared with 21,979,422 acres in 1900. The improved land in farms was 14,354,471 acres, compared with 13,741,968 acres in 1900. The average acreage per farm was 85.6 in 1910, compared with 93.7 in 1900. The value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$773,797,880 in 1910, compared with \$471,045,856 in 1900. The average value of all property per farm was \$2986, compared with \$2007 in 1900. The average value of land per acre was \$21.83, compared with \$13.24 in 1900. Of the total number of farms in the State in 1910, 171,325 were operated by owners and managers, 87,860 by tenants. Of the farms operated by owners those free from mortgage, 33,039. The native white farmers numbered 245,496, foreign-born white, 1956, negro and other non-white, 11,730. Of the non-white, all but 21, who were Indians, were negroes. The total value of the domestic animals, poultry, and bees in 1910, was \$117,486,662, compared with \$73,739,106 in 1900. The cattle numbered 1,000,937, valued at \$25,971,571; horses and colts, 443,034, valued at \$44,796,120; mules, 225,043, valued at \$26,402,090; swine, 1,491,806, valued at \$8,951,692; sheep and lambs, 1,363,013, valued at \$5,573,998. Poultry of all kinds in 1910 numbered 8,764,205, valued at \$4,461,871. The acreage, production, and value of the principal crops in 1910 and 1911 are as follows:

Crops	1911	1910	Acreage	Prod. bu.	Value
Corn	1911	1910	3,600,000	93,600,000	\$59,968,000
			3,500,000	101,500,000	53,975,000
Wheat	1911	1910	780,000	9,906,000	9,114,000
			767,000	9,818,000	9,131,000
Oats	1911	1910	170,000	3,128,000	1,564,000
			175,000	4,375,000	1,969,000
Rye	1911	1910	22,000	204,000	243,000
			25,000	825,000	276,000
Potatoes	1911	1910	52,000	2,028,000	2,170,000
			57,000	5,244,000	3,251,000
Hay	1911	1910	450,000	a 428,000	7,404,000
			500,000	645,000	8,450,000
Tobacco	1911	1910	345,000	b303,600,000	23,377,200
			525,000	425,250,000	36,996,750

a Tons. b Pounds.

MINERAL PRODUCTION. The mineral products of the State in 1910 were valued at \$21,512,982. Of this coal was valued at \$14,405,887; clay products, \$2,567,537; natural gas, \$456,293. Other mineral products are asphalt, lead, lime, sand, and gravel.

The total coal production of the State in 1910 was 14,623,319 short tons, valued at \$14,405,887, as against 10,697,384 short tons, valued at \$10,079,917 in 1909. The stoppage of work in the neighboring States was of material benefit to the operators and miners in Kentucky, particularly in the western fields. Notwithstanding the extraordinary demand upon the Kentucky mines, the labor supply was entirely adequate, as many of the miners who were thrust out of work in Illinois and the Southwestern States sought employment in Kentucky and in other States not affected by the strike order. During 1910 the coal mines of the State gave employment to 20,316 men who worked on an average 221 days. Labor troubles in the mines of the State were limited to short strikes in fourteen mines. Kentucky is one of the leading States in mining coal by the use of machines and ranks next to Ohio in the percentage of the machine mined output of the total product.

EDUCATION. The total population of school age in 1910-11 was 591,755. Of these 531,855 were white and 59,900 were colored. The total enrollment in the public schools was 424,976, of whom 385,617 were white, and 39,369 were colored. County high schools numbered 265 and in these were enrolled 2559 pupils. The teachers in the schools of the State numbered 8504 white and 983 colored. The total receipts for school purposes in 1911 were \$4,220,193.

FINANCE. The receipts for the fiscal year ending June 30, 1911, amounted to \$7,676,588. There was a balance in the treasury on July 1, 1910, of \$420,931. The disbursements during the year amounted to \$7,013,330, leaving a balance in the treasury on June 30, 1911, of \$356,289. The bonded debt of the State at the end of the fiscal year amounted to \$2,315,627.

POLITICS AND GOVERNMENT

The State legislature did not meet in 1911, as the sessions are biennial and the last was held in 1910. The State was one of five in which elections for State officials were held in 1911. In addition, primaries were held for the nomination of United States senator to succeed Senator Paynter, whose term expires in 1912. National issues took a large part in the campaign for governor. The Democrats nominated James B. McCreary, and the Republicans, Judge E. C. O'Rear. The Democrats in their platform vigorously denounced the Republican administration and President Taft. The platform attacked the Payne-Aldrich tariff law, declaring it to be a gross breach of the promises of the Republican President and his political party. The record of the representatives of the State in Congress was indorsed, especially in connection with the efforts at tariff revision. Declaration was made in favor of a direct primary election law, and a plank was adopted favoring the nomination and election of United States senators by direct vote of the people. In the primary following the convention, Ollie M. James, a representative in Congress, was nominated as the Democratic candidate for United States senator. On July 12 the Republican State convention nominated Judge O'Rear. The election on November 7 resulted in an overwhelming victory for the Democratic nominees. The State, which for four years had had a Republican governor, gave Mr. McCreary a plurality of 31,335 votes. The total vote cast was,

for McCreary, 226,771; for O'Rear, 195,436. The legislature elected was Democratic, both houses, and Mr. James was elected to the United States Senate on January 10. The Socialist vote was larger than in previous elections, but not strong enough to elect any officer. Two cities in the State, Lexington and Paducah, voted on the commission form of government November 7. It was adopted by a large majority in Lexington, but was defeated in Paducah. One of the first acts of the legislature was to pass a county unit bill, making the county the unit in all local option elections. A compulsory and direct primary bill also passed both houses of the General Assembly.

STATE GOVERNMENT IN 1911. Governor, James B. McCreary; Lieutenant-Governor, Edward J. McDermott; Secretary of State, C. F. Crecelius; Treasurer, Thomas S. Rhea; Auditor, Henry M. Bosworth; Attorney-General, James Garnett; Superintendent of Public Instruction, Barksdale Hamlett; Commissioner of Agriculture, John W. Newman; Commissioner of Insurance, Clifford Bosworth—all Democrats.

JUDICIARY. Court of Appeals: Chief Justice, J. P. Hobson, Democrat; Justices, W. E. Settle, Democrat; Edward C. O'Rear, Republican; John M. Lassing, Democrat; John D. Carroll, Democrat; T. J. Nunn, Democrat; Shackelford Miller, Democrat; Commissioner of Appeals, William R. Clay, Democrat; Clerk, Robert L. Greene, Democrat.

STATE LEGISLATURE, 1912. Democrats, Senate, 32; House, 76; joint ballot, 108. Republicans, Senate, 6; House, 24; joint ballot, 30. Democratic majority, Senate, 26; House, 52; joint ballot, 78.

The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

KENYON, WILLIAM S. United States senator from Iowa. He was born in Elyria, O., in 1869, and was educated in the public schools of Grinnell, Iowa, and at Cornell College. He studied law in this institution and was admitted to the bar. He was for two terms public prosecutor of Webster county, Ia., and was for one year judge of the eleventh judicial district of that State. For many years he was attorney and general counsel for the Illinois Central Railroad. In 1910 he was appointed assistant to the attorney-general of the United States. He was elected to the Senate by the Iowa legislature as a compromise candidate after a prolonged deadlock. See Iowa.

KERGUELEN. A dependency of Réunion (q. v.).

KERMADEC ISLANDS. A dependency of New Zealand (q. v.).

KERN, JOHN WORTH. United States senator from Indiana. He was born at Alto, Ind., in 1849 and received his education in the public schools. He studied law at the University of Michigan and was admitted to the bar in 1869. From that year until 1885 he practiced law at Kokomo, and after the latter date at Indianapolis. He was city attorney of Kokomo for six terms from 1871 to 1884, and from 1885 to 1889 was reporter of the Supreme Court. From 1892 he was a member of the Indiana Senate. He was city attorney of Indianapolis from 1897 to 1901. He was a candidate for governor on the Democratic ticket in 1900-1904. In 1905 he received the vote of his party for United States senator. He was Democratic

nominee for Vice-President of the United States on the ticket with William J. Bryan in 1908. In the election of November, 1910, he defeated Albert J. Beveridge for nomination to the United States Senate and he was elected to that position by the State legislature on January, 1911.

KESTER, VAUGHAN. An American novelist, died July 4, 1911. He was born in New Brunswick, N. J., in 1869. His parents removed to Ohio and he was educated in the common schools of Mt. Vernon in that State. He occupied positions on the staffs of several magazines and wrote many short stories and miscellaneous articles. His published novels are: *The Manager of the B. and A.* (1901); *The Fortunes of the Landrays* (1905); *John o' Jamestown* (1907), and *The Prodigal Judge* (1911). See LITERATURE, ENGLISH AND AMERICAN, Fiction.

KEY, ELLEN. See LITERATURE, ENGLISH AND AMERICAN, Political and Social Science.

KIAO-CHAU. A German protectorate, composed of a harbor, town, and district on the east coast of the Chinese province of Shantung, leased (1898) from China for ninety-nine years. Area, exclusive of bay, about 200 square miles; population, 33,000. Foreign imports and exports (1909), £3,452,050 and £2,387,200 respectively. Vessels entered (1909), 511, of 670,000 tons, besides native junks. A railway (247 miles) runs from Tsingtau (the seat of government) to Tsinan, with a 30-mile branch to Poshan. Administration expenses (1910-11), 12,720,000 marks. A governor (1911), Vice-Admiral Truppel) administers the colony under the navy department.

KILDARE, OWEN FRAWLEY. An American author, died February, 1911. He was born in New York in 1864 and started in life as newsboy. He was in turn a prize fighter, an employee in a saloon, and a dock laborer. As the result of a severe illness and through the influence of his nurse, whom he afterwards married, he became impatient for an education. He learned to read at thirty years of age and competed, a few years later, for a prize offered by a newspaper for the best love story. He continued to write and contributed to many magazines, besides publishing four books: *My Mamie Rose*, a story of his regeneration from the slums; *The Good of the Wicked*; *The Wisdom of the Simple*, and *My Old Bailiwick*.

KINEMACOLOR PROCESS. The popularity of motion pictures has stimulated attempts to secure satisfactory reproduction of many photographs in color, and this was realized practically during 1911 in the "kinemacolor" process, which was exhibited extensively on both sides of the Atlantic, particularly in the display of moving pictures of the coronation in London. The new process was based on the familiar three-color process, where negatives were made through screens of different colors and the resulting positives were then combined by projection with light that had passed through screens of the appropriate colors. While three and four-color processes have been successfully developed, both for projection and for printing, yet they did not lend themselves to cinematography, and accordingly the success achieved by Urban and Smith in their kinemacolor process, while founded on the principle of filter screens, departs so radically from previous work as to make it most interesting. It employs only two screens for taking and

reproduction, and only one film, the combination being effected on the retina of the eye. The process essentially involves the taking in rapid succession through a red and green screen alternately of a series of pictures on the usual film. This film, however, must be operated at twice the usual speed, or thirty-two exposures per second, instead of sixteen, and the shutter and screen must of course be in absolute unison. After the film is developed and printed the positive film is then placed in a projection lantern, where red and green screens are interposed in rapid succession in the path of the rays of light, the appropriate sections of the film of course being in harmony with the screens. The red picture and the green picture coming in rapid succession blend on the retina of the eye and the result is a very successful reproduction of the natural colors, which, with its defects, has proved far more successful than hand-painted films. The reds in some cases seemed very vivid and the greens intense, but these circumstances in many cases added to the brilliancy of the pictures. The process seemed destined to have wide vogue and exhibitions held in many cities were thronged.

KING, FRANKLIN HIRAM. An American agricultural scientist, died August 5, 1911. He was born at Whitewater, Wis., in 1848 and graduated from the State Normal School at Whitewater in 1892. In the following year he was engaged on the Wisconsin Geological Survey where he remained until 1876. From 1876 to 1878 he took special courses at Cornell University. In the latter year he was appointed professor of natural sciences at the River Falls State Normal School. From 1888 to 1901 he was professor of agricultural physics in the University of Wisconsin. He was appointed in 1901 chief of division of soil management, United States Bureau of Soils. He was a member of several scientific societies. He was the author of *Economic Relations of Wisconsin Birds* (1882); *The Soil* (1895); *Principles of Agricultural Irrigation and Farm Drainage* (1899); *Physics of Agriculture* (1900); and *Ventilation for Dwellings, Rural Schools, and Stables* (1908).

KING GEORGE V. See BATTLESHIPS.

KINNICUTT, LEONARD PARKER. An American chemist, died February 6, 1911. He was born at Worcester, Mass., in 1854 and graduated from the Massachusetts Institute of Technology in 1875. He studied at the universities of Heidelberg and Bonn, and at Johns Hopkins. He was instructor in chemistry at Harvard in 1880-83, assistant professor of chemistry, 1883-1885, and in 1885 was made professor of chemistry. From 1890 until the time of his death he was director of chemistry at the Worcester Polytechnic Institute. He was consulting chemist of the Connecticut Sewage Commission and was recognized as one of the greatest experts on sewage disposal and water supply in the United States. He was a member of many learned societies and contributed on chemical subjects to scientific journals.

KIPP, CHARLES JOHN. An American surgeon, died January 13, 1911. He was born at Hanover, Germany, in 1838. In 1854 he came to the United States and in 1861 graduated from the College of Physicians and Surgeons. He served throughout the Civil War as surgeon and was brevetted lieutenant-colonel of the United States Volunteers. He resigned from the army

in 1868 and engaged in the practice of surgery. He was surgeon of the Newark Eye and Ear Infirmary from 1880 to the time of his death. From 1901 to 1906 he was president of the board of managers of the New Jersey Sanatorium for Tuberculous Diseases. He was consulting surgeon to many hospitals. He was president of the American Ophthalmological Society and was a member of several medical societies both in the United States and abroad. He contributed to medical encyclopædias and was the author of numerous papers on professional subjects.

KIRISHIMA. See BATTLESHIPS.

KITTREDGE, ALBERT BEARD. An American public official, formerly United States senator from South Dakota, died May 4, 1911. He was born in Cheshire county, N. H., in 1861 and graduated from Yale University in 1882. He studied law and in 1885 was admitted to the bar. He began practice in Sioux Falls, S. D., and practiced his profession in that city until the time of his death. From 1889 to 1893 he was a member of the State senate. From 1892 to 1900 he was a member of the Republican national committee. He was appointed United States senator July 11, 1901, to fill the unexpired term of James H. Kyle. He was reelected for the term of 1903 to 1909. In the latter year he was defeated for reelection.

KLEIN, BRUNO OSCAR. An American musician, died June 21, 1911. He was born at Osanbrück, Germany, in 1858. He studied piano and composition with his father, who was organist in that city. He also studied under Rheinberger and Wullner at the Munich Conservatory. In 1878 he removed to the United States, and after several years spent in travel, settled in New York in 1883. From 1884 to the time of his death he was head of the piano department in the convent of the Sacred Heart. He also taught at the National Conservatory in the New York City for some time. In 1894 he went to Germany and appeared on the concert platform. He composed many piano works of high quality, several songs, and a sonata for violin and piano. He also composed an opera, *Kenilworth*, which was produced with success in Hamburg in 1895.

KNAPP, HERMAN. An American eye and ear surgeon, died May 1, 1911. He was born in Prussia, in 1832, and studied medicine at the University of Giessen, graduating in 1854. He afterwards studied ophthalmology in Germany, London, and Paris, and was professor in that branch at the University of Heidelberg, 1864-1868. In the latter year he for the first time visited the United States and became so impressed with the possibility of doing good service in the surgery of the eye and ear that he resolved to settle in New York. At that time the study of ophthalmology had received practically little attention in the United States. Previous to this, while at Heidelberg, he had founded the hospital and dispensary for eye diseases, which was later incorporated into the university. He resolved to establish a similar institution in New York and in 1869 founded the New York Ophthalmic and Aural Institute. In the same year he started a special journal, *The Archives of Ophthalmology and Otolaryngology*, which he edited both in English and German. In 1882 he became professor of ophthalmology in the New York University Medical College and in 1888, on the death of Dr. Agnew, was appointed to the same

chair in the College of Physicians and Surgeons. This chair he held until 1902, when he was made professor emeritus. Dr. Knapp continued in active service up to 1910, when increasing age obliged him to retire. He was for many years known as the most eminent eye and ear specialist in the United States. In addition to his general practice his work among the poor was notable. It was estimated that he examined the eyes of at least 275,000 during the active practice of his profession. From a very large proportion of these he received no pay. He was the author of *Intra-Ocular Tumors* and many papers on eye and ear surgery.

KNIGHT, GEORGE THOMSON. An American theologian and educator, died September 10, 1911. He was born in Windham, Me., in 1850 and graduated from Tufts College in 1872. In 1875 he was ordained to the Universalist ministry and in the same year became instructor in rhetoric and church history in the Crane Theological School, Tufts College. In 1883 he was made professor of church history, and in 1900 professor of Christian theology. He was the author of *The Goodness of God* (1904), and *The Praise of Hypocrisy* (1906).

KNOTT, JAMES PROCTOR. An American public official, former governor of Kentucky, died June 18, 1911. He was born in Washington (now Marion county), Kentucky, in 1830, and received his education at home. He studied law and was admitted to the bar in 1851. He practiced at Memphis, Mo., from 1851 to 1862, and from 1862 to the time of his death at Lebanon, Ky. In 1858 he was elected member of the Missouri House of Representatives and from 1859 to 1861 was attorney-general of Missouri. He was elected to the Fortieth and Forty-first and Forty-fifth and Forty-seventh congresses. From 1883 to 1847 he was governor of Kentucky. From 1892 to 1894 he was professor of civics and economics, and from 1894 to 1901 professor of law, and dean of the law faculty at Centre College. Mr. Knott during his service in Congress achieved considerable fame as a speaker and as a humorist.

KOCH-GEUNBERG, Dr. See EXPLORATION.

KOKOVTSOFF, VLADIMIR NIKOLAYEVITCH. A Russian statesman, who became prime minister following the assassination of P. A. Stolypin (see RUSSIA). He was born in 1847, and was educated in the Imperial Alexandrofsky Lyceum of St. Petersburg, an institution devoted to the training of young noblemen to the service of the state. His public career began as assistant to the chief of the prison administration, and soon afterward he was connected with the Council of the Empire and was promoted in turn from the position of assistant chief secretary of the economic department of that body to the general secretaryship of the council. He showed great skill in economic and financial questions and in 1901 was appointed an assistant minister of finance under Count Witte, and was appointed president of the commission to investigate the economic conditions of the central provinces and to ascertain the reason for the impoverishment of the agricultural population of that portion of the empire. He afterwards acted as president of another imperial commission, organized for the purpose of studying the life and circumstances of factory operatives and laborers in foundries and mills. When Count Witte in 1903 became president of the Council of Ministers, Kokovtsoff became treasur-

er of Russian monetary affairs and in February, 1904, was made minister of finance. He showed great ability in financing the war with Japan, especially in the raising of foreign and domestic loans. He provided a sum of approximately \$665,000,000 in less than fifteen months at rates of interest varying from 3.6 to 5 per cent. After the close of the war he greatly improved the credit of Russia in foreign countries by his prudent and skillful conduct of affairs. In November, 1905, he was appointed a member of the Council of the Empire and several times, beginning with 1909, acted as prime minister during the illness or temporary absence of Premier Stolypin. He has written on financial and other subjects, and in addition to his voluminous report on the economic conditions of the southern provinces, has published two books of some importance. Kokovtsoff is said to be rather more liberal and tolerant than was Stolypin. He is, however, a Conservative and a Monarchist rather than a Liberal.

KOMURA JUTARO, Marquis. A Japanese statesman and diplomat, died November 24, 1911. He was born at Hyuga in 1855. He was one of the first company of students sent by the Japanese government to the United States for education at its expense. Entering Harvard University he graduated in the class of 1877. On his return to Japan he was appointed an official in the department of justice, but in 1884 was transferred to the department of foreign affairs as secretary. Shortly afterwards he was made assistant director of the translation bureau of this department. He began his diplomatic career as *chargé d'affaires* at Peking, where he remained until the outbreak of the war between China and Japan in 1894. He was successively civil administrator of Antung and director of the political bureau of the department of foreign affairs. At the beginning of disturbances in the relation of Japan and Korea as a consequence of the assassination of the queen of Korea, he undertook an important diplomatic mission to that country. In 1896 he was recalled to Japan and assumed the post of vice-minister for foreign affairs. In 1898 he was appointed minister to the United States. He remained here four years, and then was given a similar post at St. Petersburg. He was recalled to Japan upon the debate before the Boxer uprising in China and took an important part in the international conference held as a result of this uprising. In 1901 he was made minister of the foreign office in the Katsura cabinet. During his administration the first Anglo-Japanese agreement was concluded. At this period also came the protracted negotiations with Russia which ended in the Russo-Japanese War. Komura was one of the commissioners appointed by Japan to negotiate with Russian commissioners at Portsmouth, N. H., for the treaty of peace. He negotiated the second Anglo-Japanese treaty of alliance and the Japan-Chinese negotiations which followed as a result of the Portsmouth treaty. The Japanese dissatisfaction with the terms of this treaty made him unpopular with the people. He retained the confidence of the government, however, and was appointed privy councillor in 1906. In the same year he was appointed ambassador to Great Britain and held this office until 1908. He was one of the most brilliant of Japanese

diplomats. His services were recognized by King Edward VII. by the award of K.C.B.

KONGO. See **BATTLESHIPS**.

KOREA, or officially **CHOSŌN**. The peninsula between the Yellow Sea and the sea of Japan. Formerly an independent monarchy, it is now a part of the Japanese empire, to which it was annexed August 29, 1910. Capital, Seoul.

AREA, POPULATION, ETC. The estimated area is 14,123 sq. ri (84,106 sq. miles). Estimated population in 1910, 12,959,981. The Japanese population (exclusive of the military) fluctuates, but probably averages between 145,000 and 150,000. Foreigners in 1910 were reported to number 13,382, of whom 11,533 were Chinese. Seoul has perhaps 250,000 inhabitants, and Ping-Yang 50,000. In general, the Koreans are ancestor-worshippers; among the upper classes Confucianism prevails, and there is a considerable number of Buddhist monasteries in the country. Christian missions have been very successful, the number of native Christians being reported at about 250,000 in 1910. The Japanese have undertaken the reorganization of the primary school system and the establishment of industrial and technical schools.

PRODUCTION, COMMERCE, ETC. Korea has large natural resources, but the country when annexed by Japan was economically depressed. Years of incompetent government and oppressive taxation had deprived the people of incentive and energy. It was expected that the new régime would produce large economic and social betterment, and improvement was already noticeable in 1911. Important crops include rice and other cereals, beans, cotton, tobacco, hemp, and ginseng. Gold, copper, iron, silver, graphite, coal, and other minerals occur, but, with the exception of gold, are little worked. Gold is mined by several American companies. The Japanese have taken energetic measures to develop the fisheries, the annual output of which is now valued at about \$4,000,000.

Imports and exports of merchandise have been valued as follows, in thousands of yen:

	1907	1908	1909	1910
Imports	40,050	41,026	36,649	39,793
Exports	17,002	14,113	16,249	18,914

The leading import is cotton goods; others of importance are yarn, timber, silk, tobacco, sugar, machinery, saké, and coal. The principal exports in 1910 were: Rice, 6,278,000 yen; beans, 5,726,000; cattle hides, 1,005,000; animals, 634,000; wheat, 361,000; iron, 340,000. In 1910 Japan sent 63.7 per cent. of the imports and received 77.3 per cent. of the exports: China, 9.7 and 15.2; Great Britain, 15.7 and 0.1; United States, 8.1 and 1.5. Trade largely passes through the ports of Fusan and Chemulpo. Masampo, near Fusan, has one of the finest harbors in the Orient, but at the annexation the Japanese authorities declared it a closed port from January 1, 1911. The harbor is now for the use of the Japanese navy.

Railway in operation at the end of 1910, 671 miles (1080 kilometers), of which thirty-four miles were added during the year. The line from Mokpo to Tajon is to be opened in 1913, the one from Seoul to Gensan in 1914, and the bridge across the Yalu early in 1912. This bridge will connect the Seoul-Wiju line (which has been in process of reconstruction) with the Manchurian Antung-Mukden (also recon-

structed); with all completed, Seoul will be connected by through trains with Kuanchengtzu (Changchun), the point at which the South Manchurian Railway connects with the Chinese Eastern Railway. The former (Japanese control) connects with the Imperial Railways of North China and the latter (Russian control) with the Siberian system. In 1910 there were 5567 kilometers of telegraph line in Korea and 12,799 of wire; post offices, 445.

FINANCE. The unit of value is the yen, worth 49.8 cents. The budget for the fiscal year 1910, including Japanese subventions, balanced at 20,915,678 yen; for 1912, 48,741,782. Of the estimated revenue for the latter year, the ordinary amounted to 24,067,583 yen and the extraordinary 24,674,199; expenditure, 27,891,437 and 20,850,345. The principal sources of ordinary revenue are the land tax and customs. Public debt (which has been taken over by the Japanese treasury) December 31, 1910: Treasury bonds, 24,610,000 yen; loans, etc., 68,347,890 yen.

GOVERNMENT. Korea, formerly independent, was a Japanese protectorate from March 2, 1906, to August 29, 1910. Annexed to Japan on the latter date, it was placed under the administration of a governor-general, Gen. Viscount (now Count) Terauchi Masakata, who had been the resident-general and who continued in office during 1911.

KRUPP. See NAVAL PROGRESS, *Armor*.

KUBELIK, JAN. See MUSIC.

KUBU TRIBE. See EXPLORATION, *Asia*.

KURDISTAN. See PERSIA.

KWANG-CHOW-WAN. A territory on the Chinese coast leased to France (1898) for ninety-nine years. Area, 386 sq. miles (land area, about 180); population (1906), 177,097. The administrator-in-chief (1911, M. Salabelle) is under the control of the governor-general of French Indo-China.

KWANTUNG, or KWANTO. A Japanese dependency, occupying the southern part of the Liaoting Peninsula (Manchuria). Area, 1221 sq. miles; population (1909), 445,414 (Chinese about 400,000). Japanese settlers (1910), over 32,000 (two-thirds in the Dairen region), Dairen (formerly Dalny, the capital and chief port, had (1909) 41,333 inhabitants; Port Arthur (Ryojun), 15,195. Fishing is an important industry. The main agricultural products are corn, millet, beans, wheat, buckwheat, rice, tobacco, hemp, and vegetables. Salt is manufactured. Imports (1910), 28,732,797 yen; exports, 38,797,925. Trade is chiefly with Japan. About eighty miles of the South Manchurian Railway are in Kwantung. Revenue and expenditure balanced (1911-12 estimate) at 4,984,926 yen. Japan makes up the deficit. Governor-general (1911), General (Viscount) Oshima.

LABOR. Various aspects of labor conditions will be found treated under the following heads: AMERICAN ASSOCIATION FOR LABOR LEGISLATION; ARBITRATION AND CONCILIATION, INDUSTRIAL; BOYCOTT; CHILD LABOR; EMPLOYERS' LIABILITY, which includes the progress of workmen's compensation; LABOR, AMERICAN FEDERATION OF; LABOR LEGISLATION, where the new laws not included under other articles are classified under *Administration of Labor Laws, Hours, and Accidents*; MINIMUM WAGES; OCCUPATIONAL DISEASES; OLD-AGE PENSIONS; STRIKES AND LOCKOUTS; TRADE UNIONS; UNEMPLOYMENT; VAGRANCY; WOMEN IN INDUSTRY;

and WORKINGMEN'S INSURANCE. Under several of these will be found cross-references to other articles containing matter relating to labor conditions and movements. See also UNITED STATES STEEL CORPORATION.

BIBLIOGRAPHY. The following are some of the more important books of the year treating various aspects of the conditions and organizations of labor in the United States and foreign countries: A. Acht, *Der moderne französische Syndicalismus*; R. A. Bray, *Boy Labour and Apprenticeship*; G. Cahen, *Les fonctionnaires*; F. T. Carlton, *The History and Problems of Organized Labor*; W. Gladden, *The Labor Question*; A. Greenwood, *Juvenile Labor Exchanges and After-care*; J. H. Greenwood, *The Law Relating to Trade Unions*; J. H. Greenwood, *The Theory and Practice of Trade Unionism*; Y. Guyot, *Les chemins de fer et la grève*; G. Lacoste, *Le travail de nuit des enfants*; E. Lesigne, *Les droits du travail*; Loubat, *Les accidents du travail en droit international*; P. Louis, *Histoire du mouvement syndical en France* (2d. ed. rev.); Scott Nearing, *The Solution of the Child Labor Problem*; W. V. Osborne and M. H. Judge, *Trade Unions and the Law*; Charles E. Persons, Mabel Parton, Mabelle Moses, and Threë "Fellows," ed. by Susan M. Kinsbury, *Labor Laws and Their Enforcement, with Special Reference to Massachusetts*; H. H. Schloesser and W. S. Clark, *Legal Position of Trade Unions*; S. and B. Webb, *The History of Trade Unionism* (new edition); T. Wright, *Sweated Labour and the Trade Boards Act*, Catholic studies in Social Reform; A. Zevas, *Le syndicalisme contemporain*; *Risks in Modern Industry*, *Annals American Academy of Political and Social Science*; *Uniform Child Labor Laws*; *Proceedings of the Seventh Annual Conference of the National Child Labor Committee*, *ibid.*; *Report of the Sixth General Meeting of the Committee of the International Association of Labour Legislation*, held at Lugano, September 26-28, 1910; Gilbert L. Campbell, *Industrial Accidents and Their Compensation*; Frank P. Gilbreth, *Motion Study; A Method for Increasing the Efficiency of the Workman*; F. W. Taylor, *The Principles of Scientific Management*; Frank H. Streightoff, *The Standard of Living among the Industrial People of the United States*; I. G. Gibbon, *Unemployment Insurance*; detailed account and analysis of all experiments and proposals made for insurance against unemployment.

LABOR, AMERICAN FEDERATION OF. ANNUAL CONVENTION. The fourteenth annual convention of this organization was held at Atlanta beginning November 13. The report of the president contained a record of progress in the four principal departments—building trades, metal trades, railroad employees, and union label trades. The building trades department included twenty international unions, with a total membership of 294,345. This was considerably less than the membership a year previous, owing to the defection of the United Brotherhood of Carpenters and Joiners and the International Organization of Steam and Hot-Water Fitters and Helpers, who took away 189,312 members. This loss was partly offset by the addition of the International Association of Machinists and the Slate and Tar Roofers International Union with 67,445. The metal trades department dealt with various strikes during the year, including

that of the molders of the Watertown Arsenal against the introduction of scientific management. The Union Label Trades Department reported very considerable increases in the numbers of commodities produced during the year bearing the union label. During the year ending September 30, 1911, the following new affiliations were made: Three international unions, 61 city central bodies, 207 local trade unions, and 55 federal labor unions. The total membership at the close of the year was as follows: International unions, 115; State federations, 38; city central bodies, 631; local trade unions, 493; federal labor unions, 187. There was therefore a total of 1484 organizations, including approximately 28,000 local unions, with an aggregate paid membership of 1,761,000. This was an increase of about 200,000 during the year. A considerable part of this increased membership was due to the affiliation of the Western Federation of Miners, with 51,300 members.

BOYCOTT AND CONTEMPT CASES. Two suits had begun against the American Federation of Labor and its officers on account of an injunction secured by the Buck's Stove and Range Company in restraint of a boycott carried out by the federation. One of these cases had to do with the rightful scope of the injunction, the other case dealt with an alleged contempt of the Supreme Court of the District of Columbia by the violation of the injunction by the officers of the federation. The injunction suit was carried to the Court of Appeals of the District of Columbia, which modified the original injunction; the case was then taken by appeals on both sides to the Supreme Court of the United States, where it was set for argument in January, 1911. Before this date, however, an agreement, settling all differences, was reached between the Buck's Stove and Range Company and the American Federation of Labor. When the Supreme Court of the United States, therefore, reached the appeals on the injunction it refused to pass judgment on the case since there was no longer any real dispute involved. The case was, therefore, dismissed and the costs equally divided.

The second suit, known as the contempt proceedings, was brought by the Buck's Stove and Range Company to determine whether Messrs. Gompers, Mitchell, and Morrison, president, vice-president, and secretary, respectively, of the federation, were not guilty of contempt of court through violating the injunction. Justice Wright of the Supreme Court of the District of Columbia, who issued the original injunction, found these men guilty and sentenced them to imprisonment for one year, nine months, and six months, respectively. These sentences were confirmed by the Court of Appeals of the District of Columbia and the case was taken to the Supreme Court of the United States on a writ of certiorari. In its decision in January the Supreme Court upheld the contention of Attorneys Alton B. Parker and Jackson H. Ralston for the defendants that the proceedings were of a civil and not a criminal nature, since the original petition filed by the Buck's Company was civil in nature. That company had sought whatever relief or compensation was due it on account of the failure of the injunction to prevent injury to its business. But, since the company and the defendants had settled their differences, the present suit had necessarily lost all ground with

the settlement of the main cause of which it was a part. The decision of the Court of Appeals was therefore reversed and the case sent back to that court with instructions to remand the case to the Supreme Court of the District of Columbia with directions that the proceedings instituted by the Buck's Stove and Range Company be dismissed. The sentences of imprisonment were declared improper because punitive rather than civil in character. The court, however, ordered that the dismissal of the company's suit should not prejudice the power and right of the Supreme Court of the District of Columbia to punish by a proper proceeding any contempt that had been committed. Justice Wright then appointed a committee to investigate and report whether there was good cause for believing Messrs. Gompers, Mitchell, and Morrison guilty of contempt. This committee, which consisted of the company's attorneys in the original injunction and contempt cases, formulated grounds for contempt proceedings. The taking of testimony was under way at the end of the year.

The federation continued to advocate through certain Congressmen legislation modifying the anti-trust law as it relates to trade unions and boycotts and also the modifying of the power of the courts in the issue of injunctions and the punishment of contempt cases growing out of the violation of injunctions.

Post Suit. In September, 1910, Mr. C. W. Post of Battle Creek, Mich., a minority stockholder of the Buck's Stove and Range Company, and a conspicuous opponent of organized labor, brought suit in the Circuit Court at St. Louis against the American Federation of Labor and others to recover damages under the Sherman law on account of the boycott against the above company. He alleged damages of \$750,000, and, therefore, made a claim to threefold that amount. The demurrer of the federation and others was sustained by the court in May and the dismissal of the suit was ordered. An appeal was taken to the United States Circuit Court of Appeals, where the case remained at the end of the year. See **TRADE UNIONS** for the federation's part in the McNamara case.

LABOR EXCHANGES. See **UNEMPLOYMENT.**

LABOR LEGISLATION. ADMINISTRATION OF LABOR LAWS. A considerable body of laws relating to the administration of labor laws was enacted by the States in 1911. The most notable act was that creating the Wisconsin Industrial Commission. Among the evident tendencies in the legislation was increasing specialization in labor departments and a strengthening of the provisions for the enforcement of labor laws. A considerable number of States also enacted laws with reference to the inspection of mines, greatly extending the powers of inspectors for safeguarding the health and lives of miners.

Alabama required the governor to appoint a coal mine inspector for each 2,500,000 tons of coal mined; the qualifications of inspectors and associate inspectors were placed on a high level; and inspectors were given power to close the mines under conditions deemed dangerous and to oversee the abandonment or reopening of old mines. California removed the four-year limit to the term of office of the commissioner of labor and added a deputy and assistant deputy to the department. Colorado organized a bureau of mines; divided the State into four

metalliferous mining districts with an inspector for each. Georgia established a department of commerce and labor for the collection and dissemination of statistics, with a commissioner elected for two years. Illinois added a physician and five new inspectors to the Department of Factory Inspection; increased mine inspection districts from ten to twelve; and extended the duties of coal mine inspectors. Indiana replaced its Department of Inspection with a bureau divided into three sections: Inspection of buildings, factories, and workshops; inspection of mines; and inspection of boilers. Maine combined its Bureau of Industrial Labor Statistics and the office of factory inspection into a department of labor and industries, with a commissioner appointed for three years. Massachusetts extended to February 14, 1912, the time allowed the commission for the investigation of factory inspection. Michigan required the election in each county where there are iron or copper mines of a competent mining inspector. Missouri strengthened the law for the inspection of lead and zinc mines and for the safeguarding of the health and lives of miners therein. Montana raised the qualifications of coal mine inspectors and extended their powers and duties in case of accident. Nevada extended the term of the State inspector of mines to four years; and increased considerably the penalties for failure to comply with any part of the mining laws. New Hampshire enlarged the powers of the Bureau of Labor. New Jersey increased the number of factory inspectors from sixty to eighty-five, fifteen of whom must be women; these inspectors were divided into five grades; the salary of the commissioner was raised to \$5500; the commissioner was authorized to establish districts with sub-offices in any city. Ohio increased the penalties for failure to comply with orders for alterations or additions or new appliances in shops or factories and made provision whereby shops and factories thus failing may be declared public nuisances. Oklahoma reorganized its Department of Labor into four bureaus: Statistics; arbitration and conciliation; free employment; and factory inspection. It also strengthened the powers of the commissioner of labor and of the factory inspectors. Pennsylvania made slight alterations in the law relating to bituminous coal mines, among other things increasing the number of inspectors and inspection districts; the inspection districts of anthracite coal mines were increased from seven to eight. South Carolina provided for the enforcement of the laws requiring seats for female employees in various employments, and for a woman inspector for the collection of evidence of violations. Texas authorized the appointment of a special inspector of safety appliances. Utah reorganized its Bureau of Statistics as the Bureau of Immigration, Labor, and Statistics; and increased the powers and duties of the mine inspectors. Washington abolished its mine inspection districts.

The Wisconsin Industrial Commission will consist of three men at a salary of \$5000 each and necessary expenses. It may employ experts and other assistants and fix their salaries; it will administer all the labor laws of the State, including those relating to workmen's compensation, employment agencies, trade disputes, child and woman labor, and truancy. This law covers all places of employment, except agricul-

ture and domestic services. The commission is authorized to establish "safe" conditions of industry; this is defined to mean "such freedom from danger to the life, health, or safety of employees or frequenters as the nature of the employment will reasonably permit." It is required also to protect the "welfare" of employees, this being defined as "comfort, decency, and moral well-being." The commission may make investigations and issue either general or special orders. As to unemployment, the commission may do all in its power to bring employers and employees together, may "aid in inducing minors to undertake promising skilled employments," may "provide industrial or agricultural training for vagrants" and others, and may "encourage wage-earners to insure themselves against distress from unemployment." In trade disputes the commission is given broad powers; it may appoint and pay the expenses of temporary boards of arbitration. Wyoming made new provisions for the appointment of the State mine inspector.

HOURS. The establishment of the eight-hour day for public works has become almost universal in this country, and along with its extension is going a reduction in the number of hours in private employments, such as mining and railway transportation, where long hours are likely to result in accidents. The number of hours in public employments was reduced in 1911 in four States. Connecticut limited to eight per day the hours of labor of painters, carpenters, masons, electricians, machinists, engineers, firemen, and plumbers in State institutions. Massachusetts increased the penalties for those employers who "require or permit" a violation of the public eight-hour law; persons employed in the preparation of election ballots or in legislative printing during sessions are exempted from the eight-hour law. New Jersey limited to eight hours per day work on all future public contracts, but permitted overtime with extra pay in case of accidents. Wisconsin extended the scope of its eight-hour law for public works and defined an "emergency," for which exemption is made to mean the protection of property or human life when endangered by a public enemy or by fire, storm, or flood; it also declared that if the fact of work for more than eight hours in any one day be proven this should constitute *prima facie* evidence of the violation of the law. The United States Congress provided that no part of the appropriation made for new submarine torpedo boats should be expended on contracts with employers who do not maintain an eight-hour day for all the work for which that appropriation was made.

The legislation regarding the hours in private employments was more extensive. California limited the hours of trainmen, train dispatchers, and telegraph operators to sixteen consecutive hours, to be followed by eight consecutive hours off duty; heavy penalties for violation were provided. Colorado extended its eight-hour law for miners and smelter employees, by including a larger variety of such workers, and by declaring that the period of employment shall not exceed eight hours within any twenty-four. Connecticut forbade the employment of anyone in commercial or industrial work on Sunday unless one full day in the following week be given free; a long list of exceptions, however, was added. Georgia reduced the hours of all persons in cotton and woolen mills, with the ex-

ception of engineers, firemen, watchmen, mechanics, teamsters, yard employees, clerical force, and some other help, from sixty-six to sixty per week; longer hours to make up lost time caused by accidents are permitted. Idaho increased penalties for violation of the eight-hour law and required that overtime must be paid for on an eight-hour day basis. Massachusetts declared that employees must not be required to work in mills or factories on legal holidays. Montana limited to eight hours per day the work of men in underground mines or workings, including railroad or other tunnels. Nebraska limited the hours of trainmen to sixteen consecutive hours, after which they must have at least ten consecutive hours off duty; and if they are employed as many as sixteen hours in any twenty-four they must then have at least eight consecutive hours off duty. Train dispatchers and similar employees must not be on duty more than nine hours in twenty-four at offices which are operated day and night nor for more than thirteen hours in offices operated only during the day; but in emergencies four additional hours for three days per week are permitted. Nevada extended her eight-hour law for mines, so as to include all workmen employed about the surface of any underground mine. North Carolina limited the hours of railroad employees, as did Nebraska; hours in all manufacturing establishments were reduced from sixty-six to sixty per week, with the exception of several classes of men. Oregon limited the hours of trainmen and train dispatchers, as did Nebraska, except that the consecutive hours of trainmen were limited to fourteen. Pennsylvania limited to eight hours in each twenty-four the employment of hoisting engineers at anthracite coal mines. Wisconsin forbade the opening on Sunday of shops for the sale of dry goods, shoes, hardware, furniture, dishes, jewelry, coffee, teas, and spices.

ACCIDENTS. The increased attention given in the last few years to industrial accidents led to a great volume of legislation in 1911. The new laws dealt with the reporting and the prevention of accidents. The most important features were increased regulations for the prevention of the loss of life through fires in shops and factories and the prevention of accidents on mines and railroads. Thirteen States passed laws on the reporting of industrial accidents. These laws were designed to hasten report of accidents to some State authority and to make such reports more complete. The United States required common carriers engaged in interstate commerce to report all locomotive boiler accidents resulting in serious injuries or death to boiler inspectors.

The memorable factory fires in Newark, N. J., and in New York City led to many new provisions. New Jersey enacted a very detailed law for the prevention of fire and the provision of fire-escapes. Ohio, Wisconsin, Minnesota, New Hampshire, and Massachusetts also raised their standards of safety. Pennsylvania provided for fire drills in establishments where women and girls are employed. Fire marshals were appointed or their duties increased in many States. New York appointed a commission to investigate manufacturing conditions as regards fire safety in conditions of the cities of the first and second class. Minnesota passed a law relating to safeguarding dangerous machinery. Ohio created a board of boiler rules. Massachusetts

authorized the State board of health to investigate lighting conditions in industrial establishments with reference to injuries to the eye and occupational diseases. A new law in Illinois required special devices to protect employees in dangerous processes, such as those involving the use of poisonous lead; and New Jersey protected workers in metal casting from poisonous gases. The following States passed laws on the prevention of accidents in factories and workshops: Massachusetts, Colorado, Illinois, Indiana, Iowa, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, and Wisconsin.

Frequent mine disasters in recent years have aroused the interest of the entire country in the prevention of mining accidents. A number of States have established mining boards and the United States government has established the Bureau of Mines. The most notable legislation of the year was the creation by Illinois of a mining investigation commission to study methods and conditions of coal mining with reference to the safety of life and property and the conservation of coal deposits. It also made an appropriation of \$30,000 for the Mine Rescue Station Commission. Moreover, it established a form of educational work in the prevention of accidents in coal mines and industrial plants to be known as the Illinois Miners' and Mechanics' Institutes. The following States passed laws, in most cases very extensive and detailed, for the prevention of mining accidents: Alabama, Illinois, Indiana, Iowa, Kansas, Missouri, Montana, Nevada, North Carolina, Pennsylvania, Ohio, Texas, Utah, Washington, and Wyoming.

Attention has been called repeatedly in recent years to the great number of accidents upon railroads. These have been numerous in spite of a considerable body of legislation and rules by railroad commissions designed to prevent them. Not fewer than fifteen States enacted laws in 1911, the purpose of which was to increase the protection of railroad employees. In nine States the authority of railroad commissions was increased in one way or another; in Colorado and South Carolina these commissions were given authority to make whatever rules they deem necessary to prevent accidents; and in Washington the commission was given authority to investigate all accidents and to establish specific standards for safety appliances. Laws requiring adequate trained crews, in some cases specifying the number of the crew as related to the size of the train, were passed in six States. An equal number of States established a standard for the construction of caboose cars. In three States laws prescribed experience, training, or examinations for engineers, firemen, conductors, brakemen, and signalmen. Legislation was passed in two States relating to air-brakes and in two relating to the safeguarding of frogs and switches. A locomotive boiler inspector was authorized by Indiana, which State also regulated the height of bridges and increased regulations regarding automatic bell-ringers and signal lights and switches. In Oregon sheds were required to protect employees on repair work. In Washington a public service commission, with extended powers and duties, was created to supersede the railroad commission.

Another line of accident prevention to which the laws of 1911 apply was the conditions of

building construction. Extensive laws on this subject were passed in Oregon, Indiana, and Nebraska. California, Massachusetts, New York, Rhode Island, and Wisconsin also increased the protection of workmen in the building trades.

For legislation affecting convict labor, see section under PENOLOGY. See also CHILD LABOR; AMERICAN ASSOCIATION FOR LABOR LEGISLATION; WOMEN IN INDUSTRY; UNEMPLOYMENT; OLD-AGE PENSIONS; EMPLOYERS' LIABILITY; WORKINGMEN'S INSURANCE; and VAGRANCY.

GREAT BRITAIN. Shops Bill. Early in the year Mr. Churchill introduced a bill to consolidate, amend, and extend the Shops Regulation acts of 1892 and 1904. The aim of the new bill was to limit the hours of shop assistants to sixty per week, with one afternoon holiday weekly. Overtime was allowed to the extent of 90, or 75 hours per year, except for boys under sixteen and girls under eighteen, and on condition that all assistants are given an annual vacation of two weeks or one week, respectively, on full pay. Jewish shopkeepers who closed on Saturday could keep open on Sunday; all others, with minor exceptions, were required to close on Sunday. Local authorities were empowered to fix closing hours, but these could not be earlier than 7 P. M., except on the half-holiday, when 1 P. M. was to be the earliest; moreover, any ruling by a local authority must have the approval of two-thirds of the shops affected. Seats must be provided in shops employing girls, not fewer than one seat for three girls. Public houses, refreshment rooms, motor and cycle accessory shops, newspaper, confectionery, and tobacco shops, and dairies were exempted. Bread could be sold on Sunday until 10 A. M., and hairdressers could keep open until 2 P. M. The bill was passed in November. See ARBITRATION AND CONCILIATION, INDUSTRIAL.

LABOR LEGISLATION, AMERICAN ASSOCIATION FOR. This association held a notable conference at Chicago, September 15-16, on the subject of industrial accidents. The discussions were divided under three headings: Standardization for accident prevention; administration by commissions; and uniform reporting of industrial injuries. Under the first heading much attention was given to the introduction of safety devices and to the proper functions of scientific supervision by engineering experts. Under the second heading the work of the Industrial Commission of Wisconsin, the Massachusetts Board of Boiler Rules, and the Department of Factory Inspection of Illinois were discussed. Under the third heading were presented the beginnings of reports on occupational diseases, the accident record of Minnesota, and the advantages of standard accident reports.

The association held an annual meeting in December in Washington, in connection with the meeting of the American Economic Association, and the American Sociological Society. The subjects of discussion were the conservation of human life and energy by the prevention of accidents and occupational diseases, especially in the mining industry, and the proper compensation of workmen for industrial injuries. Attention was also given to methods of obtaining full and reliable statistics of industrial accidents and diseases. Unemployment as a waste of social energy and the cause of much demoralization and dependency was another topic of discussion. Among the facts presented

was the record of 30,000 coal miners killed and 80,000 seriously injured in the past twenty years. Dr. John R. Haynes, who made this statement, vigorously urged the formation of an interstate mining commission with powers to make and enforce mining regulations. Mr. I. M. Rubinow developed the proposition that the United States government is a much worse employer, with respect to compensation for accidental injuries, than many large corporations. The constitutionality of workmen's compensation was discussed by Ernest Freund of the University of Chicago. Unemployment was presented by William Hard of *Everybody's Magazine* and by Prof. Charles R. Henderson of the University of Chicago. The latter contended that industrial education and continuation schools were badly needed and that the best form of unemployment insurance is the out-of-work benefit by trade unions subsidized by the city or State, as is commonly practiced in cities of continental Europe. In this connection a committee was appointed to organize an American branch of the International Association for the Struggle against Unemployment. Some review of the extensive labor legislation (q. v.) of 1911 was given and attention was called to the fact that neither the bill for prohibiting the use of poisonous phosphorous in match-making nor the bill for the creation of a federal commission on industrial diseases has been passed. The association has begun the publication of a regular quarterly journal entitled *The American Labor Legislation Review*. It has laid out the following programme: The passage by Congress of the Esch bill prohibiting the use of white phosphorous in the match industry (see OCCUPATIONAL DISEASES); uniform reporting of occupational diseases; the adoption of standard schedules for industrial accident and trade disease reports; one day's rest in seven; a maximum ten-hour working day for women; additional workmen's compensation acts; more efficient machinery for the administration of labor laws.

See LABOR LEGISLATION; OCCUPATIONAL DISEASES; EMPLOYERS' LIABILITY; CHILD LABOR; ARBITRATION AND CONCILIATION, INDUSTRIAL.

LABUAN. See STRAITS SETTLEMENTS.

LACROSSE. The magnificent showing made by the Crescent Athletic Club was the feature of the 1911 lacrosse season in the United States. Only two teams scored victories over the Bay Ridge players—Swarthmore by 6-3, and the Toronto A. C. by 5-1. The Crescents defeated Stevens 14-0, New York Lacrosse Club 7-1, 8-2, and 6-0, Cornell 5-0, Mount Washington 5-3, and 5-1, Toronto University 8-3, and 4-1, and the Toronto Rowing Club 7-3. The contest in Canada for the Minto Cup was won by the Vancouver team. The victors in the Intercollegiate League (U. S.) were Harvard in the northern division, and Johns Hopkins in the southern division. In a match played between these two teams Johns Hopkins won by a score of 3 to 1.

LADD, GEORGE T. See LITERATURE, ENGLISH AND AMERICAN, *Travel and Contemporary History*.

LADBONE, or MARIANNE, ISLANDS. See GERMAN NEW GUINEA.

LAKE MOONK CONFERENCE. See ARBITRATION.

LAMBDM, ALFRED COCHRAN. An American editor and critic, died November 7, 1911.

He was born in Philadelphia in 1846 and was educated in private schools. He graduated from the medical department of the University of Pennsylvania in 1866. From 1867 to 1875 he practiced medicine in Germantown, at the same time acting as editor of the *Germantown Chronicle*. From 1875 to 1896 he was managing editor, and from 1896 to 1902, editor of the *Philadelphia Times*. This paper was merged in the latter year with the *Philadelphia Public Ledger*. Dr. Lambdin acted as editor from 1905 to the time of his death. He was well known as a musical and dramatic critic.

LAMPS, INCANDESCENT. See **ELECTRIC LIGHTING.**

LANCASHIRE COTTON LOCKOUT. See **STRIKES.**

LANDS, SWAMP. See **DRAINAGE.**

LANDS, PUBLIC. Matters relating to public lands are discussed under **CONSERVATION, ALASKA, FORESTRY, and IRRIGATION.** There were no unusual developments in the administration of public lands of the United States during 1911. A bill was pending in Congress to modify the laws regulating to homesteads so as to eliminate certain hardships which those who have taken up or are to take up homesteads have hitherto suffered.

The investigation of coal claims in Alaska (q. v.) continued during the year and a decision was rendered in the so-called Cunningham claims, holding that the entries on these lands should be canceled on account of improper methods used in filing claims upon them. This is the final disposition of the long-drawn-out controversy over these claims. The total number of locations in Alaska coal claims was 1125, and the number of applications for patents was 521. Up to July, 1911, indictments returned in Alaska criminal proceedings affecting coal lands covered 641 claims out of the total of 1125.

The total cash receipts from the sale of public lands during the year was \$7,245,207. The total area of public and Indian lands originally entered during the fiscal year was 17,639,099 acres, an increase of 8,752,169 acres, as compared with the area entered during 1910. The area patented during the fiscal year was 12,272,495 acres, an increase of 1,289,345 acres, as compared with 1910.

LAND CLASSIFICATION. The total area of coal lands classified December 1, 1911, was 15,621,429 acres, valued at \$711,523. Oil land withdrawals on December 1, 1911, amounted to 3,394,914 acres; phosphate land withdrawals amounted to 2,396,391 acres; power site withdrawals amounted to 1,681,750.

NATIONAL PARKS. There were twelve national parks, comprising 4,500,000 acres. The latest of these was the Glacier National Park, which was made a national reservation in 1911. The others are the Yellowstone National Park, Yosemite National Park, Sequoia National Park, General Grant National Park, Mesa Verde National Park, Mt. Rainier National Park, Wind Cave National Park, Crater Lake National Park, Sullys Hill National Park, Hot Springs Reservation, and the Platt National Park.

LANGUAGE, INTERNATIONAL. For some time the famous scientist, Wilhelm Ostwald, of Leipzig, has had in mind the foundation of a "bureau of the international language," on the same plan as the Bureau of the International Postal Union which exists in Bern. There is in Sweden

a marked movement in favor of a universal language; in Stockholm and in other cities a strong union is working for the cause. Professor Ostwald, wishing to take advantage of the situation, has endeavored through his friend Arrhenius, to interest the Swedish government in his scheme. Representative Lindhagen has proposed to the Riksdag (congress) that Sweden should take the initiative in establishing a universal language. The bill was rejected by only 114 votes against 79. It is well known that Professor Ostwald is supporting *Ido* rather than *Esperanto*. (The Idists claim for their language the following improvements over *Esperanto*: Suppression of all accented letters and use of the Latin alphabet; suppression of diphthongs like *aj*, *ej*, *oj*, *uj*; suppression or simplification of useless or complex rules such as agreements of adjectives; regulation of derivations; and fixed rules for order of words.)

The International Congress of Esperanto took place in Antwerp in August with the usual features.

The U. E. A. (Universal Esperanto Association) is trying to show the usefulness of Esperanto in practical life. They work chiefly among business people, tourists, workingmen, young men's associations. Their number is 8000, of forty-four different nationalities. From Geneva, which is their central quarter, statistics came out recently showing that in 1910 they have helped 7565 people, of whom 1513 were business people, 1791 tourists, 402 young men, etc. In Esperanto 740 courses were organized, attended by over 12,000 pupils. More than 50,000 letters have been exchanged.

This year died in Bavaria the famous priest, Johann Martin Schleyer, the inventor of Volapük.

LANNELONGUE, ODILON MARC. A French surgeon, died December 20, 1911. He was born in 1840 at Castera-Verduzan in the department of the Gers. After obtaining his medical education he devoted himself chiefly to surgery. In 1884 he was made a professor in the faculty of medicine. He acquired great fame as a practical and theoretical surgeon and several of his books on surgery are considered standard works. He was a member of the Academy of Sciences and also of the Academy of Medicine. He was a senator from the department of the Gers and a member of the Legion of Honor.

LAOS. One of the five territories (the largest) of French Indo-China (q. v.); a French protectorate. Area (estimated), 111,940 square miles; population (1906), 663,727. Capital, Vientiane. The three protected states—Luang Prabang, with its capital Luang Prabang, the residence of the king (Som-Deck Phra Chao Sisawong); Bassac; and Muong Sing—are included with Laos. Opium, tobacco, rice, cotton, indigo, etc., are grown, and the forest products are valuable. The mines yield gold, tin, lead, and precious stones. A railway is projected to connect the Mekong with the sea, starting at Keng-Kabao and terminating at Quang-Tri—about 300 kilometers. The survey is finished to Ai-Lao (about 230 kilometers). The road is expected to be completed in 1913. There is telegraphic communication with Hué and Saigon. The budget balances at about 1,960,000 piastres (local revenue, about 600,000 piastres, the balance being supplied from the general budget of Indo-China). Resident-superior, Georges Mahé.

LARNED, CHARLES WILLIAM. An American army officer and educator, died June 19, 1911. He was born in New York in 1850 and graduated from the United States Military Academy in 1870. He served as second lieutenant with the Third Cavalry and with the Seventh Cavalry. He was made first lieutenant in 1876 and served in the South during the reconstruction period, from 1871 to 1873. In the latter year he took part in the Stanley expedition against the Sioux Indians and participated in the engagement at Big Horn River. In 1876 he was made professor of technical and military graphics and applied geometry at the United States Military Academy, after being promoted to the rank of colonel. He was dean of the Military Academy at the time of his death. He was the author of *The Great Discourse* (1890), and contributed to magazines on educational, art, military, and religious subjects.

LASPOCHORION. See ARCHÆOLOGY.

LATROBE, FERDINAND CLAIBORNE. An American lawyer and public official, died January 13, 1911. He was born in Baltimore in 1833 and was educated at the College of St. James. In 1860 he was admitted to the bar and practiced law in Baltimore. From 1869 to 1872 he was a member of the Maryland House of Delegates. He was also a member of that house in 1900. He was elected mayor of Baltimore for seven successive terms from 1874 to 1895.

LATTA, JAMES P. An American public official, congressman from Nebraska, died September 11, 1911. He was born near Ashland, O., in 1844. When he was two years of age his parents removed to eastern Iowa, where he was educated in the district schools. In 1883 he took up a homestead in Nebraska and thereafter engaged in farming and stock raising. He also organized several banks. In 1887 he served in the State House of Representatives, and in 1907 to the State Senate. He was elected to the Sixty-first Congress from the Third Nebraska district.

LAUGHTER. See PSYCHOLOGY.

LAUICOCHAR RIVER. See EXPLORATION.

LAURIER, SIR WILFRID. A Canadian statesman, until September, 1911, prime minister. (See CANADA.) He was born at St. Lin, Quebec, in 1841, and was educated at L'Assumption College and McGill University. He studied law and became a barrister in 1864 and queen's counsel in 1880. He became interested in politics in his youth and was active when the Dominion was formed in 1867. He, indeed, opposed its formation, but he accepted the new federation loyally. He made no attempt to enter the first federal Parliament, but in 1871 was elected to the Provincial Legislature of Quebec. He resigned in 1874 to enter federal politics and as member for Drummond and Athabasca formed part of the Liberal majority which supported the new Mackenzie government. At the end of 1877 he was made minister of inland revenue in the cabinet, but his constituents refused the reelection which it was necessary for him to ask. A seat was, however, found for him in the eastern division of the city of Quebec, which from that time onward he represented. He held office in the cabinet but a few months, as the Conservative victory of 1878 consigned him to the Opposition for sixteen years. As a lieutenant of Edward Blake he took an active part in the long campaign against the régime of Sir John A. Macdonald. He had developed re-

markable oratorical powers; and the protective tariff, the terms of the Canadian-Pacific Railway contract, the execution of Louis Riel after the rising of 1885, the alleged gerrymandering of constituencies in the redistribution of 1881, and the alleged corruption of the administration were among the chief objects which he attacked with marked effect. As Canada showed no sympathy with general free trade or a low revenue tariff, the Liberal party was obliged to adopt a policy of sectional free trade in the form of unrestricted reciprocity with the United States. This was not received with enthusiasm, and Mr. Blake, the Liberal leader, after the general election in 1887, abandoned the leadership of the Liberal party. To this leadership Sir Wilfrid Laurier then succeeded, although with reluctance. It was considered doubtful whether a French-Canadian leader could attract enough support from the English-speaking provinces to achieve success. The party was successful, however, but the plan for unrestricted reciprocity was abandoned. As leader of the Liberal party he became prime minister in 1891. He led his party to victory in 1896 on a platform which left the tariff question in abeyance. Under his rule, however, a notable departure was made, establishing a preferential tariff treatment for British goods. When he went to England in 1897 he joined in the celebration of the Diamond Jubilee of Queen Victoria. He was received with particular favor on account of this measure. In 1902 he attended King Edward's coronation as representative of Canada and in 1911 that of King George V. He took a leading part at the imperial conferences of 1902, 1907, and 1911. He was a strong opponent of the various plans of closer imperial organization. He was knighted in 1897. For the details of the defeat of the Liberal party on the question of reciprocity under his leadership, see the political sections of the article CANADA.

LAW, ANDREW BONAR. An English statesman, who was elected leader of the Unionist party in the House of Commons to succeed A. J. Balfour (q. v.). He was born in New Brunswick, Canada, in 1858, and received his education at the Gilbert Field School, Hamilton, Ontario, and at the high school in Glasgow. He became a member of a firm of iron merchants in the latter city and was at one time chairman of the Glasgow Iron Trade Association. He was elected to Parliament from the Blackfriars division of Glasgow in 1900, and held that seat until 1906, when he was elected from the Dulwich division of Camberwell. From 1902 to 1906 he was parliamentary secretary of the Board of Trade. While Mr. Law has never been in the cabinet, he has shown the qualities of leadership and ability on financial questions. He is an active protectionist and is earnestly opposed to the doctrine of home rule for Ireland. See GREAT BRITAIN.

LAWES-WITTEWRONGE, SIR CHARLES. An English sculptor, died October 6, 1911. He was born at Teignmouth in 1843 and was educated at Eton and Trinity College, Cambridge. He was born Charles Lawes, but in 1902, by royal license, changed the name, adding Wittevronge. In addition to his fame as a sculptor, he achieved notoriety by the famous Lawes-Belt suit in 1883. Richard Belt, a sculptor, brought suit against him on account of charges that Belt was an impostor, who had put forth, as his own work, sculptures made for him by others. Among

them were a statue of Dean Stanley, the Byron monument, and memorial busts of Charles Kingsley and Canon Conway. The trial was a famous one. It lasted for six weeks. Belt modeled before the jury a bust, which was declared by eminent artists to be without artistic merit and conclusive proof that another hand must have fashioned the works of art which he claimed as his own. In spite of this the jury awarded damages to him of \$25,000. Soon afterwards Belt was sent to prison for fraud and forgery. Sir Charles Lawes-Wittewronge was a famous athlete, and in 1865 was amateur champion oarsman of England. One of his best known works was "The Death of Circe," a group in marble. He was president of the Incorporated Society of British Sculptors and was, perhaps, the ablest plastic artist in England at the time of his death.

LAWRENCE, EDWARD ADDISON. An American educator, died February 5, 1911. He was born at Groton, Mass., in 1823, and he received his early education in that town. He graduated from Dartmouth College in 1839. He became principal of the Appleton Academy at New Ipswich, N. H., where he remained for eight years. From there he removed to Scranton, Pa., and became superintendent of the public schools in that city. In 1862 he was appointed literary adviser and director of the University Publishing Company of New York City. In this position he remained for forty-five years. He edited and revised many school and college text books.

LAW LIBRARIES, ASSOCIATION OF. See LIBRARY PROGRESS.

LAWN TENNIS. The lawn tennis season of 1911 was the most notable in the history of the sport. The visit of the English players to the United States to meet the Americans in the preliminary matches for the Davis Cup held by the Australians, attracted world-wide interest, and all former attendance records were broken at the international contests held on the courts of the West Side Tennis Club in New York City. The victory of the American team was hailed with great enthusiasm and gave tennis an impetus in the United States that augurs well for the future of the game. The team finally chosen to go to Australia and contest for the Davis Cup consisted of W. A. Larned, M. E. McLoughlin, and B. C. Wright.

A remarkable feature of the season's play was the fifth successive victory of William A. Larned in the all-comers' championship tournament at Newport, R. I. This made the seventh time that Larned had captured the highest honors, a record only equalled by Richard D. Sears, who held first ranking from 1881 to 1887 inclusive. The California players, M. E. McLoughlin and T. C. Bundy, for the third time contested with success on the Eastern courts, McLoughlin giving Larned a hard fight for the championship. Miss Hazel Hotchkiss, also of California, retained the woman's national singles title.

To the surprise of the experts F. B. Alexander and H. H. Hackett who had held the doubles championship since 1907 went down to defeat before R. D. Little and G. F. Touchard. Harvard and Princeton divided the honors in the thirty-first annual intercollegiate tournament, E. H. Whitney of Harvard capturing the singles event and Dean Mathey and J. H. Butler of Princeton the doubles match.

A summary of the principal championship and open tournaments held in 1911 follows:

International Davis Cup Ties: Singles—William A. Larned (America) defeated C. P. Dixon (Great Britain), 6-3, 2-6, 6-3, 3-6, 7-5; Maurice E. McLoughlin (America) defeated A. H. Lowe (Great Britain), 8-6, 6-1, 4-6, 4-6, 6-3; William A. Larned (America) defeated A. H. Lowe (Great Britain), 6-3, 1-6, 7-5, 6-1; Maurice E. McLoughlin (America) defeated C. P. Dixon (Great Britain), 8-6, 3-6, 6-3, 6-2. **Doubles—**C. P. Dixon and A. E. Beamish (Great Britain) defeated R. D. Little and T. C. Bundy (America), 6-3, 7-5, 6-4.

All-Comers' National Championship, thirty-first annual: Men's singles—Maurice E. McLoughlin defeated Beals C. Wright, 6-4, 4-6, 7-5, 6-3. **Challenge round—**William A. Larned (holder) defeated Maurice E. McLoughlin (challenger), 6-4, 6-4, 6-2. **Doubles, challenge round—**Gustave F. Touchard and Raymond D. Little (challengers) defeated Harold H. Hackett and Frederick B. Alexander (holders), 7-5, 13-15, 6-2, 6-4.

National Championship Doubles Preliminary Ties: Gustave F. Touchard and Raymond D. Little (Eastern champions) defeated T. C. Bundy and M. E. McLoughlin (Pacific coast champions), 6-4, 6-4, 7-9, 3-6, 10-8; C. B. Doyle and H. E. Doyle (Southern champions) defeated C. M. Bull, Jr., and H. C. Martin (Western champions), 6-3, 8-6, 6-1. Final—Gustave F. Touchard and Raymond D. Little (Eastern champions) defeated C. B. Doyle and H. E. Doyle (Southern champions), 6-4, 4-6, 6-4, 1-6, 6-3.

Woman's National Championship: Singles—Miss Florence Sutton defeated Miss Eleanora Sears, 6-2, 6-1. **Challenge round—**Miss Hazel Hotchkiss (holder) defeated Miss Florence Sutton (challenger), 8-10, 6-1, 9-7. **Doubles—**Miss Hotchkiss and Miss Sears defeated Miss Sutton and Miss Green, 4-6, 6-4, 6-2. **Mixed doubles—**Miss Hotchkiss and Wallace F. Johnson defeated Miss Wildey and H. Tilden, 6-4, 6-4.

Twelfth National Indoor Championship, at Seventh Regiment Armory, New York City: Men's singles—Theodore Roosevelt Pell defeated William B. Cragin, Jr., 6-2, 6-3, 6-4. **Doubles—**Frederick B. Alexander and Theodore Roosevelt Pell defeated Calhoun Cragin and Wylie C. Grant, 11-9, 6-3, 6-1.

Fifth National Indoor Championship, at Seventh Regiment Armory, New York City: Women's singles—Miss Marie Wagner defeated Mrs. Frederick Schmitz, 6-4, 7-9, 6-4. **Doubles—**Miss Elizabeth C. Bruce and Miss Barbara Fleming defeated Mrs. Frederick Schmitz and Miss Erna Marcus, 6-4, 8-6.

Eastern Doubles Championship and Longwood Singles: Men's doubles—Gustave F. Touchard and Raymond D. Little defeated Beals C. Wright and Nathaniel W. Niles, 6-4, 6-4, 7-5. **Men's singles—**Edward P. Larned defeated Gustave F. Touchard, 6-3, 5-7, 6-3, 6-4. **Challenge round—**Edward P. Larned (challenger) defeated William A. Larned (holder) by default.

Western Championship Singles and Doubles: Men's singles—McLoughlin defeated Hayes, 6-2, 6-3, 6-3. **Challenge round—**McLoughlin (challenger) defeated Bundy (holder), 4-6, 6-3, 6-3, 6-3. **Men's doubles—**Bull and Martin defeated Mathey and Church, 7-9, 2-6, 6-3, 7-5. **9-7. Women's singles—**Miss Hotchkiss defeated Miss Neely, 6-1, 6-1. **Challenge round—**Miss Hotchkiss (challenger) defeated Miss Gwendolyn Rees (holder) by default. **Women's doubles—**Miss

Hotchkiss and Miss Neely defeated Miss Taylor and Miss Butler, 6-2, 6-3.

Metropolitan Championship: Men's singles—Frederick C. Inman defeated G. C. Shafer, 6-0, 6-3, 5-7, 6-2. Doubles—Gustave F. Touchard and Lyle E. Mahan defeated Karl H. Behr and Raymond D. Little, 6-3, 2-6, 7-5, 7-5. Women's singles—Miss Hotchkiss defeated Mrs. Wallace, 6-0, 6-1. Women's doubles—Miss Hotchkiss and Miss Browning defeated Miss Sutton and Miss Green, 3-6, 6-2, 6-1. Mixed doubles—Miss Hotchkiss and Carlton R. Gardner defeated Mrs. George H. Chapman and A. Holmes, 6-4, 6-4.

Intercollegiate Championship, thirty-first annual: Men's singles—E. H. Whitney (Harvard) defeated A. H. Mann (Yale), 6-1, 6-2, 6-2. Doubles—Dean Mathey and C. T. Butler (Princeton) defeated Henry N. Tift, Jr., and A. Kuhn (Princeton), 7-5, 6-1, 6-3.

All-England Championship, at Wimbledon, London: Men's singles—H. Roper Barrett defeated C. P. Dixon, 5-7, 4-6, 6-4, 6-3, 6-1. Challenge round—Anthony F. Wilding (holder) defeated H. Roper Barrett (challenger), 6-4, 4-6, 2-6, defaulted. Women's singles—Miss Boothby defeated Mrs. Hannam, 6-2, 7-5. Challenge round—Mrs. Lambert Chambers (holder) defeated Miss Boothby (challenger), 6-0, 6-0. Men's doubles—Gobert and Decugis defeated Parke and Hardy, 6-2. See RACQUETS AND COURT TENNIS.

LAWRENCE. See MASSACHUSETTS.

LEA, LUKE. United States senator (Democrat) from Tennessee. He was born in 1879 at Nashville, Tenn., and graduated from the University of the South in 1899. He studied law at the Columbia Law School, engaging in the practice of his profession until the time of his election to the Senate. He was elected on January 23, 1911, receiving 68 votes, 66 being necessary to elect. (See TENNESSEE.) His term of service expires in 1917.

LEAD. The total production of primary lead from all sources, domestic and foreign, in 1910, showed a gain of 5 per cent. over that of 1909, and of this amount domestic lead played an important part. The total production of refined lead in 1910 was 470,380 short tons, compared with 448,112 short tons in 1909. Of this total of 1910 361,827 short tons were obtained from domestic ores from base bullion, 76,905 tons from foreign ores, and 31,648 tons from foreign base bullion. Of the lead produced, 329,062 tons were desilverized lead, 141,318 tons were soft lead, and 14,069 tons were antimonial lead. The largest quantity of lead produced in any one State was mined in Missouri. There the total production in 1910 according to mine reports was 161,016 tons, compared with 159,435 tons in 1909. In Idaho were mined 114,120 tons, compared with 107,993 tons in 1909. The mines of Utah produced 61,662 tons, compared with 74,143 tons in 1909. The only other State producing considerable quantities was Colorado, where 38,036 tons were mined in 1910, as compared with 36,084 tons in 1909. Amounts varying from 4000 to 1000 tons were produced in Wisconsin, Oklahoma, New Mexico, Kansas, Montana, Nevada, California, and Arizona.

Of the total amount of lead produced in 1910, 305,601 tons were obtained from lead ores, 29,623 tons from lead-zinc ores, 41,932 tons from zinc ores, and 18,157 tons from all other ores.

The world's production of lead in 1910, ac-

cording to the figures of the United States Geological Survey, amounted to 1,211,411 tons. Of this the largest quantity was produced in the United States. Following were Spain, with 211,201 tons; France, 174,053 tons; Mexico, 138,890; Australia, 108,907. These are the only countries producing over 100,000 tons. Considerable quantities come from Belgium, France, Canada, Great Britain, Greece, Turkey, and Austria-Hungary.

The value of lead and type metal imported into the United States in 1910 was \$755,092. Of this the largest value was base bullion, \$337,223; and pigs, bars, and old lead imported were valued at \$212,858; the lead in ore at \$198,196.

The production of lead as estimated by the United States Geological Survey at the end of the year 1911 exceeded the output of 1910 by between 25,000 and 35,000 tons. This relates to the mine production. The smelter production of domestic lead is estimated to have increased 35,987 tons. The production of refined lead exceeded that of 1910 by a considerable margin. The quantity of foreign lead smelted and refined in bond in the United States was the smallest since 1905, but this was more than offset by the production of desilverized and soft lead. The total production of refined lead, desilverized and soft, from domestic and foreign ores was approximately 487,520 short tons, worth \$43,876,800. These figures do not include the estimated output of 13,195 tons of antimonial lead. The production of soft lead from Mississippi Valley ores was estimated at 189,386 tons, compared with 169,244 tons in 1910, which indicates that Missouri retains first place among the lead producing States. The imports of lead in 1911 were estimated at 18,881 short tons of lead in ore, 69,914 short tons of lead in base bullion and 2448 tons of refined lead, valued at \$210,500, a total of 91,243 tons (108,602 tons in 1910). Of the imports in 1911 92 per cent. came from Mexico.

LEAGUE OF LIBRARY COMMISSIONS.

See LIBRARY PROGRESS.

LEATHER. The hide and leather industry in 1911 was not marked by any special factors of unusual moment. As will be seen from the accompanying table the slaughter of cattle at the eight great markets was the smallest in point of numbers for several years. The prices obtained for hides in 1911 were better than in 1910, the average price of packer hides for January ruling 11.395 and for December 14.445, the maximum average being for November 14.483. The average for the year was 13.218 as compared with 11.931 for 1910 and 14.830 for 1909. For country hides the average price was for January 10.49 and for December 13.437, with a maximum average for November of 13.472. The average for the year was 11.979 as compared with 11.378 in 1910 and 11.373 in 1909.

Cattle and sheep slaughtered in 1910 and 1911:

Market	Cattle		Sheep	
	1911	1910	1911	1910
Chicago	1,715,209	1,741,076	4,462,821	3,734,346
Kansas City..	1,232,391	1,285,272	1,515,489	1,185,692
Omaha	706,415	776,567	1,377,578	1,256,893
St. Louis ..	758,012	837,820	881,832	650,412
St. Joseph..	312,242	353,532	550,676	412,787
Sioux City..	189,128	187,393	147,509	71,552
Ft. Worth..	347,188	435,435	121,817	92,768
St. Paul....	182,273	145,310	169,594	208,819
Total	5,392,927	5,762,405	9,217,316	7,613,249
Loss.....	369,478		Gain.....	1,604,066

Total cattle slaughtered in eight large markets by years: 1911, 5,392,927; 1910, 5,762,405; 1909, 5,715,739; 1908, 5,406,144.

The total imports of cattle hides into the United States during the calendar year 1911 were 170,652,626 lbs., valued at \$25,227,819, as compared with 221,969,098 lbs., valued at \$32,925,374 in 1910. Calf skins aggregating 82,628,078 lbs., and valued at \$21,226,228, were imported in 1911, as against 53,157,553 lbs., valued at \$11,814,440, in 1910. The total imports of hides and skins in 1911 were valued at \$81,456,348, as against \$86,107,728 in 1910. The total exports of raw hides and skins, except fur skins in 1911 were 36,115,677 lbs., valued at \$3,942,532, as against 30,586,908 lbs., valued at \$3,506,825 in 1910. The total imports of upper leather in 1911 were valued at \$152,920, as compared with \$530,382, in 1910. Exports of upper leather in 1911 were valued at \$25,148,798, as compared with \$25,777,468 in 1910. The total exports of sole leather in 1911 were 42,704,300 lbs., valued at \$9,085,767, as against 38,615,004 lbs., valued at \$8,419,475 in 1910.

The demand for leather in Japan was increasing and the native manufacture of boots and shoes was becoming a promising industry. Leather belting was also being turned out by Japanese manufacturers.

The importance of technical instruction in the tanning and preparation of leather was beginning to be realized in the United States and a shoe and leather continuation school was being maintained by the Boston School Committee, with the coöperation of shoe and leather associations. Pratt Institute in Brooklyn carried on successful courses in tanning, which were well attended.

The movement against adulteration and substitution in leather was in evidence during the year in South Australia and a Footwear Regulation act was passed providing against the use in soles of shoes of fraudulent or imperfect materials and requiring each sole to be marked. This act was not to take effect until the end of 1912 and after similar legislation had been enacted by the parliaments of New South Wales, Victoria, and Queensland.

The British leather trade, which for several years has been endeavoring to secure reforms in the purchase of leather, was active in an attempt to bring about the standardization of leather measuring instruments. Several conferences were held with representatives of the government, but no definite action was taken by the end of the year.

LEEWARD ISLANDS. A group of West Indian islands, north of the Windward group; a British colony composed of five presidencies: Antigua (with Barbuda and Redonda), St. Christopher (St. Kitts) (with Nevis and Anguilla), Dominica, Montserrat, and the Virgin Islands (qq. v.). Total area (official statistics, 1909), 708 sq. miles. Population 1901, 127,434; in 1911 (April census), 127,189. Sombrero is a small island of the Leeward group, from which phosphate of lime is shipped. It is attached administratively to the Virgin Islands. Schools (1909), 146; with average attendance, 12,555; government grant, £7195. Total cultivated area, 52,834 acres (Dominica unknown), of which 32,727 were under sugar cane. Export of sugar in 1908 was 23,572 tons; of cotton, 1,060,996 pounds. Imports (1909), \$587,817; exports, \$558,-

165. Tonnage entered and cleared (1909), 2,313,293. Railways (private, 16¼ miles); in Antigua. Revenue (1909-10), £164,375; expenditure, £159,263; public debt, March 31, 1910, £273,250. St. John, in Antigua, is the residence of the governor and commander-in-chief (1911, Sir Ernest Bickham Sweet-Escott).

LEEWARD ISLANDS (ILES SOUS LE VENT). See FRENCH ESTABLISHMENTS IN OCEANIA.

LEFEBURE, ALBERT-LÉON. A French economist, died August, 1911. He was born in 1838. He was for a time engaged actively in political life and was a member of the second De Broglie cabinet. He made special investigation into the condition of French prisons. In 1903 he was elected to the Academy of Moral and Political Sciences. His writings on economic subjects were numerous and include the well-known *Etude sur l'économie rurale de l'Alsace*.

LEFFINGWELL, E. D. See POLAR RESEARCH.

LEGISLATION, EDUCATIONAL. See EDUCATION.

LEGROS, ALPHONSE. A French painter and etcher, died December 8, 1911. He was born in 1837, at Dijon, France. He studied under Lecoq de Boisbaudran, and exhibited his first picture, a portrait of his father, in 1857. Two years later he painted his "Angelus," which received high praise. In 1863 he became professor of etching at South Kensington, London, and in 1886 was appointed Slade professor of fine arts at University College, London, to succeed E. J. Poynter. He held this chair for seventeen years. In addition to being an excellent painter he was one of the revivalists of etching and was a finished draughtsman in chalk and silver point.

LEHIGH UNIVERSITY. An institution of higher learning, founded in 1866 at South Bethlehem, Pa. The number of students in attendance in 1911-12 was 655 and the faculty numbered 67. The university offers the following four-year courses of instruction in arts and sciences: Classical, Latin scientific, biology and chemistry, geology, mathematics and physics, business administration. In technology: Civil engineering, mechanical engineering, metallurgical engineering, electro-metallurgy, mining engineering, electrical engineering, chemistry and chemical engineering. The productive funds amounted to \$1,182,986, and the total income to \$91,171. The library contains about 125,000 volumes. The president is Henry S. Drinker, LL. D.

LELAND STANFORD JUNIOR UNIVERSITY. An institution of higher learning at Stanford University, Cal., founded in 1887. The total enrollment of all departments of the university in 1910-11 was 1770. The registration for 1911-12 was 1618. The faculty at the beginning of the year 1911-12 numbered 174. Prof. A. A. Young as head of the department of economics, resigned, and Dr. A. S. Johnson of the University of Chicago was appointed his successor. On January 1, 1911, Dr. R. L. Wilbur assumed the permanent headship of the department of medicine, and at this time began the active work of the university department of medicine at San Francisco in the plan of taking over the Cooper Medical College, an adjustment which will be completed in July, 1912, with the graduation of the last class to enter Cooper College.

A gift of \$10,000 was received from Mr. and Mrs. F. W. West, of Seattle, to found a memorial lectureship in honor of their son, who was drowned while an undergraduate in the university. The lectureship has for its subject, "Immortality: Human Destiny and Human Conduct." The income of the various funds of the university available for educational uses amounts to about \$450,000 per year. The library contains about 150,000 volumes. The president is David Starr Jordan, LL. D.

LEMONS. See **HORTICULTURE.**

LEONARDO DA VINCI (Ship). See **BATTLE-SHIPS.**

LEPROSY. Marked advances in the knowledge of this disease were made in 1911, and the prospect that a cure will be found on the basis of modern biological methods seems assured. Koch's postulates as to what constitutes a specific contagious disease have at last been fulfilled in the case of leprosy, to wit, a particular type of microorganism is constantly found in the lesions of the disease; these organisms can be cultivated in artificial media, and inoculation with these cultures produces the specific lesion in another animal. Success in animal inoculation advanced almost equally with progress in artificial cultivation of the leprosy bacillus. Clegg produced from inoculation of pure cultures localized lesions in the guinea-pig closely resembling those in man, and Duval has recently successfully repeated these experiments in monkeys, obtaining from the infected animals an acid-fast organism from the remote lesions. As to transmission, Duval and Gurd were able to cultivate the organism from the nasal secretions in two out of five cases. They also succeeded in inoculating mice by rubbing cultures of the bacillus into their nares after gentle scarification. It is held by some observers that insects may play an important rôle in transmitting leprosy. Considering the enormous numbers of lepra bacilli in the infiltrated or ulcerated skin and nasal mucus of a leper in the active stage of the disease and the ingestion of bacilli by certain insects, it was suggested that direct contact and transmission by flies, fleas, mosquitoes, or other insects are possible modes of spreading the disease, but such infection must be accidental and exceptional. Sandes found acid-fast bacilli answering to the characteristics of lepra bacilli in about 30 per cent. of specimens of *Acanthia lectularia* up to sixteen days after feeding on lepers, and he believes that this species of insect constitutes a not unimportant agent in spreading leprosy. The possibility of the bacillus being carried by vermin also occurred to Long. With a view of testing this hypothesis, bedbugs obtained from huts which had never been inhabited by lepers were caused to bite lepers in the neighborhood of leprosy nodules on the face. These bugs were then killed and the alimentary tract examined. In those bugs which bit freely, bacilli were found similar to the bacillus lepræ. Control bugs from the same hut contained no such organisms.

In the light of the foregoing, the development of a vaccine treatment against leprosy would seem logical and feasible. Rost treated twelve patients with a vaccine prepared from a culture of the leprosy bacillus. Five of these cases were cured so far as clinical observation goes, while the remaining seven are remarkably improved. Rost used one c. c. of a 1 to 400 dilution of dried culture, or the equivalent thereof,

and one c. c. of a sterilized six weeks' broth culture. He found it advisable to give small doses in nodular cases and larger doses in the anæsthetic variety. The higher the reaction in the anæsthetic cases, the better was the result. The reason for this, he believes, lies in the fact that in anæsthetic cases, the bacilli being situated in the nerves, there is not the danger of metastasis that there is in the large masses of the nodular variety. Williams also used a vaccine prepared in fifteen cases with very gratifying results, although he refuses to consider his patients absolutely cured.

LEVASSEUR, PIERRE EMILE. A French economist and educator, died July 10, 1911. He was born in Paris in 1828 and was educated at the Collège Bourbon. After graduation he became professor in the Lyceum at Alençon. This position he held for two years and then went to Besançon. In 1856 he received an appointment at the St. Louis Lyceum in Paris, and in 1872 became professor in the Collège de France. Previous to this in 1868 he had been elected a member of the French Academy. In 1903 he was elected president of the Political Economy Society. His chief studies were made in relation to the working classes and their problems. He was active in promoting international congresses for the discussion of statistical and geographical topics and was one of the founders of the French Society of Commercial Geography. He visited the United States Columbian Exposition and wrote as the result, *Agriculture in the United States* (1899), and *The American Worker* (1900). Among other important works written by him are *Historical Researches of the System of Law* (1884); *History of the Working Classes in France from the Conquest of Caesar to the Revolution*, and *History of the Working Classes in France from 1789 to 1867*.

LEWIS, Sir GEORGE HENRY. An English solicitor, died December 7, 1911. He was born in 1833. His father, James Graham Lewis, was an eminent solicitor. He was admitted to practice as an attorney in 1856, and soon afterwards became famous by conducting the prosecution of the directors of Overend and Gurney's Bank after that institution had failed. He figured either as prosecutor or defendant's attorney in some of the most famous cases tried in England. Among these were the Colin-Campbell divorce case and the Tramby-Croft baccarat scandal. He also prepared the case for Parnell in the famous *Times* Parliamentary Commission hearing. He was the discoverer of the fact that the informer, Richard Piggott, was the forger of the alleged Parnell letters on which the case turned. He was sometimes called "Father Confessor" of London because he had heard so many of the sins of society and had never revealed them. He was created a knight in 1893 and baron in 1902. Two years before his death he retired from active service.

LEXINGTON. See **KENTUCKY.**

LIABILITY, EMPLOYERS'. See **EMPLOYERS' LIABILITY.**

LIBERIA. A negro republic (independent) on the west coast of Africa. Area (estimate), 35,000 sq. miles; population, about 1,500,000 (10,000 Americo-Liberians). The majority of the indigenous negroes belong to the Mandingo, the Kisi, the Gola, and the Kru tribes, all pagans except the first, which is Mohammedan. Capital, Monrovia (6000 inhabitants). Im-

ports (1910), £122,300; exports, £188,500. The trade is largely with Great Britain, Germany, and the Netherlands. Customs revenue (1910), £84,875; expenditure, no estimate given. External debt, £178,250 in 1908. By an agreement reached in January, 1911, an international loan of £500,000 is to be raised, secured on the customs; and the United States assumed responsibility for internal administration of the country. An American controller is to direct the customs, assisted by British, French, and German sub-controllers. The executive is the president (January 1, 1912-16, Daniel Edward Howard, elected May, 1911), aided by a council of six. The parliament (of two houses) is the legislative body. Secretary of state (1911), F. F. R. Johnson. Chief inspector of customs and British financial adviser, Richard Sharpe.

HISTORY. An obstacle to the American treaty with Liberia appeared in the attitude of the French government, which required as conditions precedent to its consent, that Liberia should sign the boundary treaty with France of 1907, as it had been interpreted by the Mixed Frontier Commission. In January it was announced that the Liberian government had acceded to this demand. Thus the way was now open to the carrying out of the American treaty negotiations. Prof. Roland P. Faulkner, formerly head of the American Commission to Liberia and later appointed special financial agent to the United States, visited Monrovia for the purpose of securing the passage of the necessary legislation. It was announced in October that a scheme for American financial control was, after long negotiations, approved by the United States, Germany, France, and Great Britain. The receiver-general was to be an American, and was to serve also as financial adviser to the Liberian government. It was provided that French, German, and British subjects should be appointed as receivers to cooperate with him. It was also provided that a frontier police force should be established for the securing of the revenue, organized by trained military officers designated by the United States. The first financial measure proposed was a loan which should be a first lien on all import and export customs, on rubber tax and head moneys.

LIBRARY ASSOCIATION, AMERICAN.

A society organized in 1876 and incorporated in 1879 to develop the public library in its bearing on American education and by cooperation to increase the efficiency of library administration. The association holds annual meetings. The thirty-third annual conference was held May 18 to 24, at Pasadena, Cal., at which there was an attendance of 582. At this conference the Special Libraries Association was received as an affiliated organization and a section for librarians of agricultural libraries was created. The question of affiliation of the various State library associations with the national association was discussed at a round table called for that purpose. In addition to the usual business reports of committees, and discussions, the following subjects were among those considered in the programme: What the community owes the library (president's address and general theme of the conference), exploitation of the public library, the effect of the commission plan of city government on public libraries, municipal civil service as affecting libraries, the academic standing of college library

assistants and their relation to the Carnegie Foundation, the condition of libraries in federal prisons, the administrative units in library extension—the township, the county, the State, etc., the basis of support for public library work, materials and methods in bookbinding, and various phases of work with children.

The headquarters of the association are in Chicago, in the public library building. This is the distributing centre for all the American Library Association publications, and serves as a bureau of information concerning library work in the United States and Canada. The official organ is the *Bulletin of the American Library Association*, which is published bi-monthly and distributed free to members. One number contains the proceedings of the annual conference and one constitutes the handbook of the association. The association publishes a monthly magazine, the *Booklist*, an annotated guide for the selection and purchase of new books. Publications of value to librarians are on file for the assistance of library workers and others. The association has been instrumental in establishing library organizations in 40 States, besides many local library clubs in cities and districts. Affiliated with it are four national organizations for kindred purposes: The National Association of State Libraries, the League of Library Commissions, the American Association of Law Libraries, and the Special Libraries Association. An important activity of the association is a publishing board, which operates under a gift of \$100,000, made in 1902 by Andrew Carnegie. The income from this fund is used in the compilation of indexes, of bibliographies, reference helps and literature for the promotion of library extension and the selection of books. Among its publications are an important bibliography of American history, a portrait index containing 120,000 references, and the A. L. A. catalogue of 8000 best books (1904). Early in 1912 a supplement to this catalogue will be published covering the books printed from 1904 to 1911. A manual of library economy, the chapters written by specialists in the respective subjects, is being prepared. About 60 publications of the association are now in print. The membership of the association is about 2100. The officers for 1911 were as follows: President, Mrs. H. L. El-mendorf, Buffalo Public Library; first vice-president, Henry E. Legler, Chicago Public Library; second vice-president, Mary W. Plummer, New York Public Library School; executive board, the above officers and W. C. Lane, Harvard College Library, Alice S. Tyler, Iowa Library Commission, Des Moines, Herbert Putnam, librarian of Congress, Purd B. Wright, Kansas City (Mo.) Public Library, C. W. Andrews, John Crerar Library, Chicago, Linda A. Eastman, Cleveland Public Library; treasurer, Carl B. Roden, Chicago Public Library; secretary and executive officer, George B. Utley, 78 E. Washington Street, Chicago. The thirty-fourth annual meeting of the association will probably be held at Ottawa, Canada, in June, 1912. See LIBRARY PROGRESS.

LIBRARY OF CONGRESS. There were in the Library of Congress at the end of the fiscal year 1911, 1,891,729 books, 123,568 maps and charts, 557,010 volumes and pieces of music, and 336,966 prints. There is also a large number of manuscripts, but a numerical statement of these is not possible. During the year there

were acquired 98,571 additional volumes. There were no considerable gifts of collections during the year, but among the notable acquisitions was the copy of the catalogue of the collection of jewels and precious works of art, owned by J. Pierpont Morgan, together with fifteen catalogues and lists of Mr. Morgan's collections of printed books. From the John Rylands Library of Manchester, England, was received a "copy of the English Bible in the John Reynolds Library, 1525-1640." No important collections of books were purchased during the year, but several important acquisitions were made in the field of history and auxiliary science, and in the field of art and architecture. In the division of manuscripts one of the most important additions was the John Sherman papers given to the library by Mr. Hoyt Sherman of Washington. Papers of Gen. George B. McClellan were given by his son, Hon. George B. McClellan. A collection of papers relating to the Civil War period of Edwin M. Stanton was given by his son, Mr. Lewis H. Stanton, and Edgar T. Welles of New York deposited in the library the papers of his father, Gideon Welles. A number of other collections relating to American history were received. Librarian, 1911, Herbert Putnam.

LIBRARY PROGRESS, 1911. ASSOCIATIONS AND COMMISSIONS. In the United States there are 34 States that have library commissions or bodies serving commission purposes. There are 38 State library associations. The leading library commissions publish bulletins, most noteworthy among which are: *New York Libraries*, *News Notes of California Libraries*, and the *Wisconsin Library Bulletin*. The League of Library Commissions is affiliated with the American Library Association and includes membership from all commissions. The commissions and associations work together, the commission carrying on the pioneer and library organization work of the State. The State associations hold annual meetings, some of which are almost like national conferences in character of programme and in number of attendance. Important State conferences were held in Asbury Park, N. J., in May, in Madison, Wis., in July, and in New York City in September. This last was the annual meeting of the New York Library Association and in attendance excelled all but a few national conferences. It was the third library convention held in New York City.

NEW LIBRARY BUILDINGS. Of paramount importance was the completion of the new building of the New York Public Library, which was opened on May 23, 1911, with appropriate ceremonies. The new building was designed by the celebrated architects, John Mervin Carrere and Thomas Hastings, following out the original plan as conceived by Dr. John S. Billings, the library's director. The New York Public Library is the largest library system in the world and the new building one of the most magnificent of library structures. It was erected by the city at a cost of some \$9,000,000. Its site was obtained in 1897 and the cornerstone laid in 1902. The building has accommodation for about 3,000,000 volumes and over 1700 readers. Another beautiful new library opened during the year was the University of California library. The St. Louis Public Library is almost completed. Plans are under way for the erection of a new building for the Provincial Library of British Columbia. Chicago, Cleveland, and Seattle have erected interesting representative

branch libraries. Among smaller public libraries, Elizabeth, N. J., and Springfield and New Bedford, Mass., have erected handsome new buildings.

CARNEGIE LIBRARY GIFTS. The organization of a Carnegie Corporation of New York places the donation of Carnegie library gifts under the control of a corporation. Mr. Carnegie gave \$25,000,000 to this body, which was organized on November 10, "to promote the advancement and diffusion of knowledge and understanding among the people of the United States."

LIBRARY TRAINING SCHOOLS. The New York Public Library established a library school in May, 1911. This school is financed for five years by Mr. Andrew Carnegie, with a yearly appropriation of \$15,000; it is housed on the ground floor of the new building of the New York Public Library. Miss Mary W. Plummer is principal of the school, which is already of leading importance. This brings the number of library schools in the United States up to '2. Their courses vary from one to two years, and some schools admit only students who hold B. A. degrees. The schools are connected with libraries, universities, or State commissions. There are several brief summer library courses extended by library commissions or library schools with the purpose of giving systematic instruction to untrained library workers. Many libraries also give professional or training classes as preliminary equipment for work within their own grades of service. The Brooklyn, Chicago, and St. Louis public libraries give such courses. The professional training section of the American Library Association purposes to standardize and develop the efficiency of the library schools.

LIBRARY APPOINTMENTS. Several important library appointments were made during the year. Mr. George B. Utley, previously librarian of the public library of Jacksonville, Fla., succeeded Mr. Chalmers Hadley as secretary of the American Library Association. Miss Frances J. Olcott resigned from the directorship of the Carnegie Library Training School of Pittsburgh after remarkable pioneer work in this field. Miss Katharine Wootten succeeded Miss Julia Rankin as the librarian of the Carnegie Library of Atlanta. Everett R. Parry succeeded Purd B. Wright as librarian of the Los Angeles Public Library. The profession lost by death F. M. Crunden, one of its oldest leading members, who, previous to his retirement because of illness, was for many years librarian of the St. Louis Public Library. W. I. Fletcher, another pioneer in the American library movement, resigned from the Amherst College library after twenty years of service.

SPECIAL EVENTS. The irreparable loss by fire of the New York State Library on March 29 marks a crucial event in library history. Of the collection, which numbered over 1,000,000 books, pamphlets, and priceless manuscripts, perhaps 10,000 books and one-tenth of the manuscripts, and a few pamphlets, were saved. This calamity, due to gross negligence in the State capitol, exerted an immense influence throughout the country in the development of precautionary measures against fires in library buildings. Library cooperation in exhibits, such as the New York City and Chicago child welfare exhibits, and budget exhibits in New York and other cities, indicate the vitality of library work and its close relation to civic activities.

Work with schools, playgrounds, and institutions for defective and criminal classes continues with an increase of organization and efficiency. The work with high school libraries, including the training of students in the use of the library, has been developed into a field for expert library workers. There is an increase of coöperation between libraries in the interchange of books, co-operative publication of bulletins, and standardization of library methods.

LIBRARY LITERATURE. Perhaps the most important library publication of the year was the new revised edition of the *Dewey Decimal Classification*, an exhaustive scheme for the classification of libraries, by Melvil Dewey, the first edition of which was published thirty-five years ago. The *A. L. A. Catalogue of Subject Headings*, another valuable library tool, which has been in preparation for several years, is also a noteworthy publication of the year. There have been additions to Mr. Dana's *Modern American Economy* series and to Miss Hasse's *Index of Economic Material in Documents of the States of the United States*.

LIBRARY TRAINING SCHOOLS. See **LIBRARY PROGRESS**.

LIEGE METAL. See **CHEMISTRY, INDUSTRIAL**.

LIFEBOAT, FLYING. See **NAVAL PROGRESS, Naval Aeronautics**.

LIFE INSURANCE. See **INSURANCE**.

LIGHT. See **PHYSICS**.

LIGHTHOUSES. A new European lighthouse was completed on the island of Ushant, off the coast of France, near Cape Finisterre, at a cost of about \$155,000 for the structure and complete equipment. This new lighthouse, La Jument, was first suggested in 1904, when a M. Pourtelon left \$80,000 towards its erection. It is located at the extreme southern point of Ushant, and is the first of a complete system of lights and beacons to aid in the navigation of the channel between the island and the mainland. It is a granite tower, rising to a height of 107 feet above sea level, with foundations sunk to a depth of 20 feet in the solid rock. The light is visible for 20 miles and shows a red flash light, obscured three times for 2.42, 2.42, and 8.42 seconds, the light itself showing for little less than a second. There is also a fog signal installed at the lighthouse.

There were in 1911 (June 30) the following aids to navigation maintained by the United States lighthouse service:

Lighted aids	
Hyper-radiant lights	1
First-order lights	57
Second-order lights	25
Third-order lights	72
Three-and-a-half-order lights	17
Fourth-order lights	333
Fifth-order lights	151
Sixth-order lights	90
Lens-lantern lights	551
Range lens lights	20
Reflector lights	97
Post-lantern lights	2,362
Electric lights without lens	10
Light-vessel stations	51
Gas-lighted buoys	232
Gas and Whistling buoys	25
Gas and aerial bell buoys	30
Float lights	87
Total	4,211
Lights on fixed aids	3,786
Lights on floating aids	425
Total lighted aids	4,211
Unlighted aids	
Fog signals, engine-power	249
Fog signals, clock-work	232
Fog signals, hand-power	24
Electric gongs	1
Daymarks, beacons, etc.	1,295
Submarine signals	40
Buoys, whistling (unlighted)	88
Buoys, bell (unlighted)	189
Buoys, iron	1,827
Buoys, spar (wood)	3,994
Total unlighted aids	7,939
Grand total	12,150

LION. See **NAVAL PROGRESS, Guns and Gunnery**, and **BATTLESHIPS**.

LIP AND LEG ULCERATION. See **VETERINARY SCIENCE**.

LIPPE. See **GERMANY**.

LIPPITT, HENRY F. United States senator (Republican) from Rhode Island. He was born in Providence in 1856 and graduated from Brown University in 1878. He at once entered the cotton manufacturing business, in which he served in various capacities from day operative to general manager. He became director in several financial institutions and an official in cotton manufacturing companies. He was elected June 18, 1911, to succeed Nelson W. Aldrich (See **CONNECTICUT**.) His term of service expires in 1917.

LIQUORS. The following table, compiled from

Countries		Malt liquors		Wines		Distilled spirits	
		Million gallons	Gallons per cap.	Million gallons	Gallons per cap.	Million gallons	Gallons per cap.
United States.....	(1910) ..	1,851.3	20.09	60.5	0.66	132.5	1.46
United Kingdom.....	(1909) ..	1,397.3	31.44	15.2	0.31	40.1	0.96
Germany	(1909-10) ..	1,703.5	26.47	74.6	1.16	94.2	1.48
France	(1909) ..	375.0	9.51	1,541.4	39.36	70.9	1.81
Austria	(1908-9) ..	492.9	17.17	178.6	6.34	54.7	1.81
Belgium	(1909) ..	411.7	55.2	9.1	1.21	10.7	1.42
Russia	(1908) ..	231.4	1.46	No data	No data	232.7	1.45
Spain	(1909) ..	No data	No data	345.9	18.23	No data	No data
Sweden	(1908-9) ..	72.3	13.31	No data	No data	8.6	1.57
Switzerland	(1909) ..	64.6	18.00	52.2	14.55	8.6	0.99
Denmark	(1909) ..	61.7	22.98	No data	No data	8.0	2.97
Italy	(1908) ..	17.4	0.51	1,012.0	31.17	26.1	0.76
Bulgaria	(1909) ..	3.2	0.75	34.9	8.19	0.6	0.13
Hungary	(1908-9) ..	55.7	2.90	98.6	4.76	43.7	2.11
Netherlands	(1909) ..	No data	No data	2.3	0.40	10.3	1.84
Norway	(1909) ..	11.8	5.03	No data	No data	2.0	0.87
Portugal	(1909) ..	No data	No data	146.3	27.39	No data	No data
Rumania	(1909) ..	4.9	0.72	33.7	5.02	6.7	0.96
Servia	(1908) ..	2.9	1.02	10.5	3.70	No data	No data
Australia	(1909) ..	56.9	13.20	5.6	1.80	4.6	1.07
Canada	(1909-10) ..	47.4	6.36	0.9	0.12	7.3	0.97
Cape of Good Hope.....	(1909) ..	3.3	1.32	3.5	1.44	1.2	0.53
Transvaal	(1909) ..	3.9	2.88	0.5	0.38	0.8	0.67

official sources by the Bureau of Statistics Department of Commerce and Labor, shows in millions of gallons the consumption of malt liquors, wines, and distilled spirits, respectively, in the principal countries of the world for which statistics of this character are published, and the per capita consumption in each instance, the figures being for the latest year for which statistics are published (see page 400).

Belgium is by far the largest consumer of malt liquor per capita of any country in the world, the United Kingdom being second, Germany third, Denmark fourth, and the United States fifth, while Italy is the smallest consumer.

Regarding the consumption of wines, France is by far the largest consumer, while Italy and Portugal are the next largest, Spain being fourth, and Switzerland fifth. Canada is the lowest consumer of wine, only 0.12 gallon per capita being consumed yearly.

Regarding distilled spirits, Denmark is the largest consumer, the consumption being 2.97 gallons per capita. Hungary is second, Netherlands third, France fourth, and Austria fifth. The country consuming the least amount of distilled spirits is Bulgaria. The United States is fifth as regards the amount of malt liquors used, eighth as regards distilled liquors, and nearly the lowest among the nations in the amount of wine consumed, being fifth on this basis; in other words, only four other countries consume less amounts of wine than the United States.

This table is somewhat at variance with the ordinary ideas regarding the matter, as Germany has always been considered the greatest consumer of malt liquors, and from this table it appears that it is third on the list. The figures are also somewhat unexpected as regards the consumption of distilled spirits, as Russia and England have always been considered large consumers of distilled spirits.

In addition to the figures given in this table, information shows that in New Zealand the total consumption of wine in 1910 was 715,908 gallons, or at the rate of 0.21 gallons per capita, a very slight increase in consumption over that noted for the previous year. Regarding malt liquor, the total amount consumed during 1910 was 9,500,000 gallons, or a per capita rate of 13.48 gallons, which shows New Zealand to be one of the large consumers of malt beverages.

More interesting is a comparison of the consumption in 1910 with that of 1904, as shown in the following tables giving the per capita consumption of the principal countries of Europe:

	Malt Liquors		Wines		Spirits	
	1904	1910	1904	1910	1904	1910
	Gals.	Gals.	Gals.	Gals.	Gals.	Gals.
United Kingdom	35.42	31.44	.39	.31	1.38	1.45
France	7.48	9.51	34.73	39.36	2.51	1.81
Germany	30.77	26.47	1.93	1.16	2.11	1.48
Italy	.20	.51	31.86	31.17	.34	.76
Russia	1.33	1.46	.00	.00	1.29	1.45
Belgium	56.59	55.2	1.28	1.21	1.42	1.42
Sweden	8.83	13.31	.18	.....	2.13	1.57

This table shows that in the United Kingdom and Germany there has been an appreciable decrease in the consumption of malt liquors in the last few years, while in Sweden and France there has been an increase. Regarding the consumption of wines, there has been very little change during the period covered by the table,

although France shows an increase. In 1904 Belgium was the great consumer of malt liquors, very largely exceeding any other country.

In the case of distilled spirits, France, Sweden, and Germany show a decreased consumption in 1910, while the United Kingdom, Italy, and Russia show a slight increase.

Regarding the consumption of liquors in the United States, the Statistical Abstract of the United States, 1910, page 544, gives some exceedingly interesting figures showing that since 1840 there has been a great decrease in the consumption of distilled spirits, reaching its lowest figure in 1896 with a per capita consumption of 1.01 proof gallon. Since that time, however, there has been an increase, reaching 1.58 gallons in 1907, and 1.43 gallons in 1910. In consumption of wines there has been very little change, the figures showing a very gradual increase, from .29 gallon per capita in 1840 to .65 gallon in 1910. In malt liquors, however, there has been a remarkable increase, this country consuming in 1840 only 1.36 gallons per capita, and 19.79 gallons in 1910.

The following table, taken from the above-named publication, gives the consumption of distilled spirits, of wines, of malt liquors, and the total of all wines and liquors, per capita, in the United States for the last ten years (in gallons):

Year	Spirits	Wines	Mt. liq.	Total
1900	1.28	.39	16.09	17.76
1901	1.31	.36	15.98	17.65
1902	1.34	.61	17.18	19.14
1903	1.43	.47	17.67	19.57
1904	1.45	.52	17.91	19.87
1905	1.42	.41	18.02	19.85
1906	1.47	.53	19.54	21.55
1907	1.58	.65	20.56	22.79
1908	1.39	.58	20.26	22.22
1909	1.32	.67	19.07	21.06
1910	1.43	.65	19.97	21.86

WINES. The wine production of the world for 1911 was much more nearly normal than in 1910, which was a very bad year. The great wine-producing countries of the world—France, Italy, and Spain—show a marked increase due to the better season, France producing 1,277,238,000 gallons in 1911, as against 627,652,608 gallons in 1910, being nearer to its normal production. Italy produced 1,188,000,000 gallons in 1911, as against 700,000,000 in 1910; and Spain 540,000,000 in 1911, as against 400,000,000 in 1910. These three countries alone produced 1,277,583,392 gallons more wine in 1911 than in 1910, and when we consider that this increase in production is more than the total amount of wine produced in all the other countries in the world combined, it can be seen that it will greatly affect the markets of the world.

In comparison with this enormous production, the 24,000,000 gallons of dry wines and 18,850,166 gallons of sweet wines produced in California is hardly appreciable. In fact, the total production of wines in the United States in the year 1911, approximately 55,000,000 gallons, can have little weight as affecting prices in the world's markets.

AMERICAN FORTIFIED WINES. The production of this class of wines in this country being under the direct supervision of the Treasury Department, it is possible to give exact figures. The

table given below states the production for 1910 and 1911, and shows a slight increase. This increase is almost entirely in the production of wines of the port type, the production of 1911 being 10,042,819 gallons, as against 9,319,629 gallons in 1910. The table gives tax gallons of brandy used, and wine gallons fortified (1910 and 1911):

	Tax gals. brandy used		Wine gals. fortified	
	1910	1911	1910	1911
California	4,702,861	4,951,640	18,086,868	18,850,166
Hawaii ..	8,214	10,190	89,843	43,593
New York	139,240	138,892	572,049	548,208
N. Carolina	4,570	5,834	87,512	53,116
Virginia ..	31,924	.....	262,444	.....
Total for U. S.	4,888,445	5,101,517	19,012,397	19,498,767

FERMENTED LIQUORS. The year 1911 was a record year in the production of malt liquors; 63,216,851 barrels tax-paid as against 59,485,117 barrels in 1910. This means 1,896,505,530 gallons of beer, ale, etc., produced in the United States. The report of the commissioner of internal revenue shows a smaller number of breweries in operation, 1492 in 1911 as against 1658 in 1910; i.e., 162 fewer breweries produced a very much larger amount of malt liquors, indicating a tendency towards larger plants.

DISTILLED SPIRITS. The total production of distilled spirits in the United States shows a marked increase over the previous year, being 175,402,395 gallons in 1911, as against 150,237,526 in 1910, and 133,459,755 in 1909; in fact, it was the largest production in the history of the Bureau of Internal Revenue. The amount of distilled spirits tax-paid for consumption also shows a large increase, 132,058,636 gallons being withdrawn in 1911, as against 126,384,726 in 1910. These figures indicate a marked increase in the use of distilled spirits, which applies to the last four years. The table given below shows the production of the various kinds of distilled liquors for the past three years:

	Rum	High wines	Gin
1909	1,952,374	221,277	2,483,743
1910	1,730,561	206,534	2,985,435
1911	2,077,904	165,017	3,345,370
	Whisky	Alcohol	Com.
1909	70,152,174	42,563,103	16,078,082
1910	82,463,894	50,703,845	15,841,370
1911	100,647,155	44,205,329	21,780,391

The principal change is in the production of whisky, under which heading is now included spirits made from molasses as well as from grain. This condition has tended to increase the bottling in bond, which guarantees the purity of the product to the consumer, as shown by the following figures: 1908, 4,794,358 gallons; 1909, 6,365,839 gallons; 1910, 8,985,759 gallons; 1911, 10,631,091 gallons.

The latter amount represents about eight per cent. of the potable spirits tax-paid during the year. There is also a considerable amount bottled in bond for export, and this

is increasing year by year, as is evident from the fact that 24,339 gallons were exported in 1909, 30,461 in 1910, and 41,188 gallons in 1911.

The amount of illicit distilling is steadily on the increase, especially in prohibition States, 2488 such distilleries being seized and destroyed in 1911, as against 1911 in 1910. When it is considered that there are only 923 registered distilleries in the United States the extent of the fraud is seen. This illicit distilling is chiefly done in Alabama, Georgia, North Carolina, South Carolina, Tennessee, and Virginia.

CORDIALS. Regarding cordials the most interesting happening during the year was the issuing of a tentative ruling by the Board of Food and Drug Inspection prohibiting the importation of absinthe. This ruling was based on the fact, noted in other countries, that the drinking of this cordial flavored with wormwood had a very injurious effect. Several countries have prohibited the manufacture and sale of it, and France has found it necessary to make restrictions regarding its sale.

LIQUOR REGULATION. The most spectacular event relating to the liquor question in 1910 was the election held in Maine to determine whether or not the constitutional amendment providing for prohibition should be repealed. This is discussed fully in the article **MAINE**. An interesting campaign was carried on in Texas, which resulted in the defeat of prohibition by a majority of about 7000 (see **TEXAS**). In Alabama the legislature repealed the prohibitory law, enacting in its place a county local option law. Under this law fourteen counties voted during the year, of which 7 voted dry, 1 voted for a dispensary, and 5 for open saloons. In California a law was enacted providing for local option in towns, cities, and supervisorial districts outside of municipalities. At the end of the year about 42 per cent. of the State was dry. In Florida agitation was carried on during the year for statewide prohibition following the defeat of the prohibitory amendment in November, 1910. The prohibition question in Georgia became a prominent factor in the gubernatorial primaries of 1911, and Governor Brown, who was the successful candidate, stood for the enforcement of the existing prohibitory law. In Indiana the legislature of 1911 repealed the county option law passed in 1908, enacting in its place city and township local option measures. Under this law 70 of the 92 counties of the State had abolished saloons at the end of the year. In Illinois several important measures were passed relating to liquor regulation. A campaign was carried on during the year for county local option. This was defeated in the legislative session. As a result of a Supreme Court decision handed down on December 18, 1911, 247 saloons in Iowa were compelled to go out of business. This law was an interpretation of the Moon law, which makes it impossible for more than one saloon to operate in any town in Iowa having a population of less than 1000. An attempt to incorporate a provision for prohibition in the constitution of New Mexico was defeated, as was also an effort to secure a clause in the constitution providing for local option, with the county as a unit. The legislature of West Virginia in 1911 by a majority vote in both houses submitted to the people an amendment to the State constitution providing for state-

wide prohibition. This amendment will be voted on in November, 1912. An attempt to pass a county local option measure in Wisconsin was defeated in the legislature. There were, however, a number of restrictive measures passed.

The Anti-Saloon League continued its aggressive campaign for the limitation of areas in the various States in which liquor was not to be sold or made.

The following table, taken from the *Anti-Saloon League Year Book*, shows the relative population living in "wet" and "dry" territory in the United States in 1911:

State or Territory	Total Population		
	Population	in "Dry" Territory	in "Wet" Territory
Alabama	2,138,093	1,924,284	213,809
Arizona	204,354	45,000	159,354
Arkansas	1,574,449	1,435,000	139,449
California	2,377,549	800,000	1,777,549
Colorado	799,024	435,602	363,422
Connecticut	1,114,756	200,000	914,756
Delaware	202,322	80,200	122,122
Dist. of Columbia	331,069	59,079	271,990
Florida	752,619	658,271	94,348
Georgia	2,609,121	2,609,121	.....
Idaho	325,594	217,159	108,435
Illinois	5,638,591	1,900,000	3,738,591
Indiana	2,700,876	1,755,569	945,307
Iowa	2,224,771	1,718,752	506,019
Kansas	1,690,949	1,690,949	.....
Kentucky	2,289,905	1,721,000	568,905
Louisiana	1,656,388	800,000	856,388
Maine	742,371	742,371	.....
Maryland	1,295,346	450,000	845,346
Massachusetts	3,366,416	1,161,589	2,204,827
Michigan	2,810,173	850,000	1,960,173
Minnesota	2,076,708	1,000,000	1,076,708
Mississippi	1,797,114	1,797,114	.....
Missouri	3,293,335	1,150,000	2,143,335
Montana	376,053	15,000	361,053
Nebraska	1,192,214	595,000	597,214
Nevada	81,875	8,000	73,874
New Hampshire	430,572	230,000	200,572
New Jersey	2,537,167	137,749	2,399,418
New Mexico	327,301	40,000	287,301
New York	9,113,614	646,710	8,466,904
North Carolina	2,206,287	2,206,287	.....
North Dakota	577,056	577,056	.....
Ohio	4,767,121	2,400,000	2,367,121
Oklahoma	1,657,155	1,657,155	.....
Oregon	672,765	200,000	472,765
Pennsylvania	7,656,111	1,379,720	6,276,391
Rhode Island	542,610	15,906	526,704
South Carolina	1,515,400	1,100,000	415,400
South Dakota	583,888	400,000	183,888
Tennessee	2,184,789	2,184,789	.....
Texas	3,896,542	3,409,476	487,066
Utah	373,351	125,000	248,351
Vermont	355,956	279,994	75,962
Virginia	2,061,612	1,500,000	561,612
Washington	1,141,990	445,000	696,990
West Virginia	1,221,119	889,196	331,923
Wisconsin	2,33,860	600,000	1,733,860
Wyoming	145,965	48,000	97,965
Totals	91,962,266	46,091,098	45,871,168

those of 1910 added for comparison. The classification is that adopted by the International Congress of Librarians at Brussels in August, 1910, and so differs slightly from that used hitherto in the *YEAR BOOK*.

	New books	New editions	Total 1911	Total 1910
Philosophy	305	29	334	265
Religion and Theology	879	38	917	943
Sociology and Economics	614	39	653	784
Law	629	53	682	678
Education	289	11	300	523
Philology	180	12	192	...
Science	559	65	624	711
Applied Science, Technology, Engineering	584	122	706	857
Medicine, Hygiene	390	187	527	544
Agriculture	231	9	240	332
Domestic Economy	81	14	95	332
Business	209	18	227	...
Fine Arts	176	20	196	345
Music	81	5	86	345
Games, Sports, Amusements	94	9	103	145
General Literature, Essays	892	27	919	2,091
Poetry and Drama	674	11	685	752
Fiction	999	25	1,024	1,539
Juvenile Publications	725	9	734	1,010
History	425	17	442	565
Geography and Travel	555	43	598	599
Biography, Genealogy	647	48	695	645
General Cyclopedias, General Works, Bibliographies, Miscellaneous	222	22	244	142
Total	10,440	783	11,123	13,470

FICTION. It is hardly possible to speak of any general trend of popular taste when all sorts of fiction are continually in demand. The books that are stacked up together upon the "best sellers" counter of the department stores are simply the most attractively written specimens of their respective species. Still, it may be noted that there is a pronounced tendency to prefer romances of quiet, homely, and optimistic sentiment to fiction of an extravagant and exotic character or to the gloomy and perplexing problem novel. Books of a decidedly sensual or salacious tone are not so much in evidence as they were a few years ago, although they rarely then attained any great popularity. In England, however, there has been much discussion of the pernicious influence of recent fiction in undermining the institutions of society, and many demands are heard for greater stringency on the part of the circulating libraries. Several of the most popular novels of 1910 reappear in the American list of best-selling fiction for 1911: *Molly Make-Believe*, by Eleanor Hallowell Abbott; *Max*, by Katherine Cecil Thurston; *The Rosary*, by Florence Barclay; *The Mistress of Shenstone*, by the same author; *The Siege of the Seven Suits*, by Meredith Nicholson; *Flamstead Quarries*, by Mary E. Waller. Of the twenty-eight authors represented in the list of best-selling fiction, twelve are women. The most popular novel of the year in America was *Molly Make-Believe*, a fresh and charming story of love's fairyland with a winsome heroine. *The*

LITERARY CRITICISM. See LITERATURE, ENGLISH AND AMERICAN.

LITERATURE, ENGLISH AND AMERICAN. In England there were 10,914 books published during 1911, a greater number than ever before and 110 more than the total of 1910. In America the number was 11,123, which is less than the year before. The accompanying table gives the statistics of American production in detail as reported by the *Publishers' Weekly*, with

Broad Highway, by Jeffery Farnol, is a romance of rural England a century ago, with the spirit of adventure and a hero of the open road to recommend it to popular favor. *The Prodigal Judge*, by Vaughn Kester, is an adventure story of the South full of whimsical humor and well-drawn characters. Next in the order of popularity are: *The Rosary*, by Florence Barclay, the best-selling book of last year; *Queed*, by Henry Sydnor Harrison, a novel of newspaper life in Richmond, Virginia; *The Long Roll*, by Mary Johnston, a story of the Civil War with Stonewall Jackson as its central figure; *The Rules of the Game*, by Stewart Edward White, a presentation of the conservation problem and pictures of life in the forest; *Miss Gibbie Gault*, by Kate L. Boshier, a sequel to *Mary Cary*; *The Winning of Barbara Worth*, by Harold Bell Wright, a story of conservation work in a Colorado desert; *The Ne'er-Do-Well*, by Rex Beach, romantic adventures in Panama; *The Phantom of the Opera*, by Gaston Leroux, a wildly sensational mystery of the opera house in Paris; *The Root of Evil*, by Thomas Dixon, an anti-Mammon tract; *The Grain of Dust*, by the late David Graham Phillips, a bitter story of a young lawyer's life in New York; *The Golden Silence*, by C. M. and A. M. Williamson, the "silence" is that of a desert harem; *The Miller of Old Church*, by Ellen Glasgow, a Virginia pastoral; *The Common Law*, by Robert W. Chambers, the story of an artist's model; *The Harvester*, by Gene Stratton Porter, a story of the forest; *The Iron Woman*, by Margaret Deland, a sequel to *The Awakening of Helena Richie*, one of the strongest novels of the year, with a powerful woman as its central figure; *The Purchase Price*, by Emerson Hough, a story of slavery and the negro question; *The Golden Web*, by Anthony Partridge, concerns itself with a gold mine and a lost deed; *Marie Claire* translated from the French of Marguerite Audoux and skillfully advertised; *The Glory of Clementina*, by William John Locke, treating of the transformation of a plain, spinster artist into a conventionally brilliant woman, and the vain attempt of a kindly man to be cruel. This was equally popular in England, where it appeared under the name of *Clementina Wing*. Arnold Bennett also commands a large audience in America which he visited for the first time this year. His *Hilda Lessways* is the complement of *Clayhanger*, presenting the feminine view of the incidents recorded in the former novel and explaining the actions of its illusive heroine. His *Denry the Audacious*, a lighter story of the Five Towns, also appeared this year, and his earlier essays and romances are being reprinted. *The Case of Richard Meynell*, by Mary Augusta (Arnold) Ward (Mrs. Humphry Ward), is, in a sense, a sequel to *Robert Elsmere*, as it presents the modernist movement in the Church of England, with a more aggressive hero than Elsmere as its protagonist, and Catherine reappears in the new book, twenty years older and wiser, although no modernist. *Ethan Frome*, by Edith Wharton, is a vital story of New England village life, most carefully wrought out, a triumph of artistry. In *A Likely Story* William De Morgan attempts to satisfy those who liked his former manner and disliked his historical romance of last year, *An Affair of Dishonor*, by combining the two styles, putting an old Italian romance in an "early Victorian" frame. *Peter and Wendy*, by J. M. Barrie, is

another telling of the story of *The Little White Bird* and *Peter Pan*. In *Mrs. Thompson* W. B. Maxwell has drawn with great skill the mature and efficient business woman, a type rare in fiction, yet appearing also this year in *The Iron Woman*. Maurice Hewlett returns to the style of his earlier romances in *The Song of Renny* and *Brazenhead the Great*. Two novels are devoted specifically to the divorce question; Anthony Hope in *Mrs. Mazon Protests* views separation leniently, Harold Begbie in *The Cage* is emphatically opposed. *The New Macchiavelli* by H. G. Wells is an extensive work consisting of a series of graphically detailed scenes from the life of a politician whose career was ruined by an illicit love affair. *Jennie Gerhardt*, by Theodore Dreiser, is the story of a poor girl forced into vice by sordid circumstance, reminding one of George Moore's *Eather Waters* by reason of style, theme, and effectiveness. *The Fruitful Vine* by Robert Hichens is the tragedy of a childless couple, set in Italian scenes. *At Good Old Siwash*, by George Fitch, is a series of sketches of student doings in a middle West college, satirical but kindly, extravagant burlesque, and yet somehow true to life. *Sizes and Sevens* is a collection of short stories by the late "O. Henry" (Sidney W. Porter). In *Potash and Perlmutter* Montague Glass presents Hebrew-American types in an inimitable manner. *Pay Envelopes*, by James Oppenheim, deals with people caught in the cog-wheels of industrialism. In *Members of the Family* Owen Wister returns to the sage brush country. Other volumes of short stories appearing during the year are: Gilbert K. Chesterton's *The Innocence of Father Brown*, in which a priest plays the part of detective in various fantastic mysteries; Richard Harding Davis's *The Men Who Could not Lose*; W. W. Jacobs's *Ships' Company*, sea-captains' yarns, delightful as ever; Mrs. Edith Wharton's *Tales of Men and Ghosts*; Prof. L. P. Jacks's *Among the Idol Makers*, a group of eccentric characters under the influence of Nietzsche and other kindred spirits; St. John Lucas's *Saints, Sinners, and Unusual People*; *The Empty House*, by the late Elizabeth Stuart Phelps (Ward), the last of over thirty volumes; Sir Arthur Conan Doyle's *The Last Galley*, impressions and tales.

Fiction by women is generally indistinguishable from that written by men, but in three volumes of the year the feminine point of view is distinctly and delicately expressed. *The Very Little Person*, by Mary Heaton Vorse; *Mother*, by Kathleen Norris; *More Letters to My Son*, by "A Soldier's Wife." Other noteworthy novels of the year are: *The Outcry*, by Henry James; *The Secret Garden* by Frances Hodgson Burnett, a fresh air story of child life; *The Life Everlasting* by Marie Corelli; *The Following of the Star*, by Florence Louisa Barclay, a Christmas love story, a mixture of religion and sentiment; *Lalage's Lovers* by George A. Birmingham; *Adrian Savage*, by Lucas Malet (Mrs. Mary St. Leger Harrison); *Tante*, by Anne Douglas Sedgwick, a striking study of an egotistic artist; *Red Eve*, by Sir Henry Rider Haggard, a romance of Crécy and the Black Death; *Thanks to Sanderson*, by W. Pett Ridge; *Mayfield*, by Vincent Brown; *A Safety Match*, by Ian Hay; *Juggernaut*, by E. F. Benson; *Kennedy Square*, by F. Hopkinson Smith, with Poe as one of the characters; *John Sherwood*, *Ironmaster*, by Dr.



WILLIAM DE MORGAN



Courtesy of the Atlantic Monthly

JOHN GALSWORTHY



H. G. WELLS



ARNOLD BENNETT

FOUR AUTHORS PROMINENT IN 1911

S. Weir Mitchell; *Margery*, by E. F. Benson, a finished study in egoism; *The Patrician*, by John Galsworthy; *The Doctor's Christmas Eve*, by James Lane Allen, a sequel to *The Bride of the Mistletoe*; *The Visioning*, by Susan Glaspell; *Under Western Eyes*, by Joseph Conrad, an Englishman among Russian revolutionists; *The Healer*, by Robert Herrick, a great physician's compromise with commercialism; *The Conflict*, by the late David Graham Phillips; *The Beacon and Demeter's Daughter*, by Eden Phillpotts; *Burning Daylight*, by Jack London, a story of the Klondike; *Eve's Second Husband*, by Corra Harris, the career of a Southern politician; *Fenella*, by H. L. Stuart, a charming portrait of a dancer; *The Early History of Jacob Stahl*, by J. D. Beresford, a minute study of a sensitive youth; *The Quest of the Silver Fleece*, by W. E. Burghardt Du Bois; author of *The Soul of Black Folks*; *The Ship of Coral*, by H. de Vere Stacpoole, island adventures; *Flaws*, by Miss Barlow, a novel of Ireland and the Irish; *The Centaur*, by Algernon Blackwood, a mystical tale of the Caucasus; *The Lady of the Spur*, by David Potter, a stirring romance of the West Jersey pine barrens; *Keeping Up with Lizzie*, by Irving Bacheller, an American Book of Snobs; *One Way Out*, by William Carleton, a middle-class New Englander "emigrates to America" to solve his financial difficulties by living as newly arrived citizens do. *Jean-Christophe* and *Jean-Christophe in Paris* by Romain Rolland, contain the detailed history of the life of a musician in Germany and in France, giving in the latest volume published a remarkable analysis of French art and society. The two volumes are translated by Gilbert Cannan.

POETRY. Considering the small demand there is for poetry it is astonishing how much of it is produced every year. Often a volume of excellent verse will scarcely sell at all outside the author's personal circle. Perhaps it is because of the fact that the writing of poetry is only a labor of love that the average quality of it is so high. The most common defect, which probably accounts largely for its lack of popularity, is aloofness from life, a failure to contribute new thought or inspiration on questions in which people of to-day are vitally interested. This fault, at least, cannot be charged against G. K. Chesterton, for in retelling the story of Alfred in his *Ballad of the White Horse* he finds opportunity to denounce imperialism and decadent literature. The volume most generally recognized by the critics as distinctive for its true poetic merit is *Provença*, by Ezra Pound, a product of the author's residence in the south of France. But in this field we can merely mention titles without attempting characterization: *The Lure of Life*, by Oliver Opp-Dyke; *A Midsummer Memory*, an elegy on the death of Arthur Upton, by Richard Burton; *The Princess*, a poetic drama in two scenes by James Oppenheim; *At Sunset*, last poems by the late Julia Ward Howe; *Poems*, by Sophie Jewett; *Les Enfants*, French Canadian dialect poems, by Gertrude Litchfield; *The Overture and Other Poems*, by Jefferson Bolton Fletcher; *The Anteroom and Other Poems*, by William Hervey Woods; *The Wanderers and Other Poems*, by Henry Bryan Binns; *Helen of Troy and Other Poems*, by Sara Teasdale; *America the Beautiful and Other Poems*, by Katherine Lee Bates; *The House of Orchids and Other Poems*, by George Sterling; *Song-Surf*, by Cale Young

Rice; *A Roman Wit*, epigrams of Martial, by Paul Nixon; *The Woman and the Fiddler*, a play, by Arne Norrevang, translated by Mrs. Herman Sandby; *Three Lays of Marie de France*, by Frederick Bliss Luquiens; *Lyrics and Sonnets*, by Louis How; *By the Sea and Other Poems* by Anne Cleveland Cheney; *Soldiers of the Light*, by Helen Gray Cone; *Ægean Echoes*, by Helen Cole Crew; *At the Silver Gate*, by John Vance Cheney; *Songs of Courage and Other Poems*, by Bertha F. Gordon; *Æonian Echoes*, by Martha J. Kidder; *Mothers' Love Songs*, by Elizabeth Toldridge; *Summer of Love*, by Joyce Kilmer; *Poems and Dramas*, by George Cabot Lodge; *Poems*, by Madison Cawein; *The Fighting Race and Other Poems*, including the well-known "Kelly and Burke and Shea," by Joseph I. C. Clarke; *The Rose of the Wind*, by Anna Hempstead Branch; *Poems of the Past and Present*, by Marguerite Radclyffe-Hall; *A Fool's Paradise*, by Dum-Dum (Captain Kendall); *Hard Labor and Other Poems*, by John Carter, a Minnesota convict; *Fifty Poems*, by John Freeman; *New Poems*, by Katherine Tynan; *The Crucibles of Time and Other Poems*, by Darrell Figgis; *Mirage*, by Douglas Ainslie; *Confessional*, by Wilfred Thorley; *Poems*, by Emery Pottle; *Sonnets*, by Lucilla; *A Woman's Love*, by Helen F. Bantock; *Mary and the Bramble* and *The Sale of St. Thomas*, by Lascelles Abercrombie; *Poems*, by C. F.; *The Garden of Gray's Inn and Other Verses*, by Christian Tearle; *The Porch of Paradise*, by Anna Bunston; *A Soggarth's Last Verses*, by Father Mathew Russell; *A Wayfarer's Treasures*, by an anonymous author; *Pagan Sonnets*, by John Myres O'Hara. Of poetical anthologies and collected works may be mentioned: *The Ellesmere Chaucer*, reproduced in facsimile; *English Songs of Italian Freedom*, chosen and arranged with an introduction by George Macaulay Trevelyan; *A Book of Light Verse*, edited by R. M. Leonard; *An Anthology of Humorous Verse* from Robert Herrick to Owen Seaman, by Helen and Lewis Melville; *The Collected Works of William Morris*, with introductions by his daughter, May Morris; *The Poems of Henry van Dyke*, now first collected and revised with many hitherto unpublished; *The Book of Scottish Poetry*, chosen and edited by Sir George Douglas; *Scottish Poetry*, Drummond to Ferguson, by the same editor; *The Plays and Poems of George Chapman*, the tragedies edited, with introduction and notes, by Thomas Marc Parrott; *Poems in Wiltshire* by Alfred Williams.

DRAMA. The printed drama nowadays shows many conflicting ideals and curious cross-currents. It ranges from boldest realism to airy allegory, from classical or pre-classical forms to ultra-modernism and even futurism. The revival of pageantry, ecclesiastical, scholastic, literary, and historical, in England and America has stimulated popular interest in new forms of outdoor acting, most original of which are perhaps the annual "high-jinks" of the Bohemian Club of San Francisco, producing privately in the forest such musical plays as *The Green Knight*, by Porter Garret and Edward G. Stricklen. John Galsworthy, author of powerful sociological dramas like *Justice* and *Strife*, comes forward now with a bit of delicate Alpine symbolism in prose and verse, *The Little Dream*. Maurice Hewlett in his "Trilogy of God and Man," *The Agonists*, again puts into poetry the old story of the house of Crete, from the rape of

Europa to the death of Phædra, with the promise of an epilogue concerning the passion of Christ. Other poetic dramas are: *The Florentines*, by Maurice V. Samuels; *Manin and the Defence of Venice*, by John Presland; *The Silver Age*, by Arthur E. J. Legge; *Experiments in Playwriting in Verse and Prose*, by John Lawrence Lambs; *The Days of the Magnificent*, by Arthur Marquarie; *Mona*, an opera in three acts, by Brian Hooker, with music by Horatio Parker, awarded the \$10,000 prize in the contest for an American opera; *Sherwood*, by Alfred Noyes. In prose drama we have: *The Playboy of the Western World*, by John M. Synge, which, when produced in New York by the Irish players of Lady Gregory, aroused a riot in the theatre from their fellow-countrymen; three plays by George Bernard Shaw, *The Doctor's Dilemma*, *Getting Married*, and *The Shewing Up of Blanco Posnet*, dealing respectively with the iniquities of medical practice, the absurdities of marriage laws and the psychology of conversion; *The Arrow-Maker*, by Mary Austin, an Indian play; *Disraeli*, by Louis N. Parker; *Three Plays by Brieux*, translated from the French, with a preface by Shaw. The success of *The Blue Bird* and the award of the Nobel prize for idealistic literature has aroused special interest in Maurice Maeterlinck, so we have biographies by Montrose J. Moses and Edward Thomas, and a study of symbols entitled *On Maeterlinck*, by Henry Rose. Mr. Moses has also a life of *Henrik Ibsen* and a volume on *The American Dramatist*. Edward Gordon Craig has enlarged and republished his revolutionary essays *On the Art of the Theater*. On the American stage we have *Memories of a Manager*, by Daniel Frohman; *English Dramatic Companies, 1558-1642*, by John Tucker Murray, is a valuable and accurate piece of research.

ESSAYS AND LITERARY CRITICISM. This is, as usual, a rich and well-worked field. People much prefer to read about poetry, and particularly about poets, than to read poetry, especially that written by their contemporaries. The schools, public libraries, and culture clubs afford a good market for well-written studies of authors, and classroom lectures and prefaces to collected editions provide abundant materials. The most popular book of the year in this department, *Appreciations and Criticisms of the Works of Charles Dickens*, by G. K. Chesterton, originated in such prefaces; and the same author's *Alarms and Discursions* is composed of his contributions to current periodicals. *The Cambridge History of English Literature*, edited by A. W. Ward and A. R. Waller, reaches its seventh volume dealing with the period of *Cavalier and Puritan*, and especially with Milton. On the Shakespearean period, we have: *The Women of Shakespeare*, by Frank Harris; *English Literature during the Lifetime of Shakespeare*, by Felix E. Schelling; *The Chief Elizabethan Dramatists*, by William A. Neitson; *Stories of Shakespeare's Comedies*, by H. A. Guerber. *The French Renaissance in England*, by Sidney Lee. A series of volumes edited by W. H. Hudson, for the use of schools, half biography and half selected poems, comprises for this year: *Matthew Arnold and His Poetry*, by Francis Bickley; *Coleridge and His Poetry*, by Kathleen E. Royds; *Lovell and His Poetry*, by W. H. Hudson; *Shelley and His Poetry*, by E. W. Edmunds. *Japanese Poetry*, by Basil Hall Chamberlain, is a thorough and authorita-

tive treatment of a subject which is beginning to arouse the same interest as Japanese architecture and decorative art. Prof. William Lyon Phelps of Yale contributes a volume of *Essays on Russian Novelists*. Thomas Whittemore edits the works of Lionel Johnson, under the title *Post Liminium: Essays and Critical Papers*. In literary criticism the discussion of the methods and meaning of poetry is most prominent: *A Study of Versification*, by Brander Mathews; *Lectures on Poetry*, by J. W. Mackail; *The Inspiration of Poetry*, by George Edward Woodberry; *English Poetry: an Induction*, by W. Winslow Hall; *Poetry and Prose* by Adolphus Alfred Jack; *The Origin of Tragedy*, by William Ridgeway; *The New Criticism*, by J. E. Spingarn; *The Comic Spirit in George Meredith*, by Joseph Warren Beach; *Two Centuries of the English Novel*, by Harold Williams; *Thomas Hardy*, by F. A. Hedgecock; *The Outdoor Life in Greek and Roman Poets*, by the Countess Evelyn Martinengo Cesaresco; *Platonica*, by Herbert Richards; *The Craftsmanship of Writing*, and *Some American Story Tellers*, by Frederic Taber Cooper; *The Writing of News*, by Charles G. Ross, addressed primarily to students of journalism. Among the essays of a more general character may be mentioned: *Adventures in Friendship*, by David Grayson, a volume that pleased a wide circle of readers; *The Believing Years*, by Edmund L. Pearson, charming glimpses of boyhood; *Essays in Fallacy*, by Andrew MacPhail; *Genius and Other Essays*, by the late Edmund Clarence Stedman; *Edgehill Essays*, by Adrian Hoffman Joline; *The Belmont Book*, by Vados, a human-nature study book; *The Coming Religion*, by Charles F. Dole; *The Talk of the Town*, by Mrs. John Lane; *First and Last*, by Hilaire Belloc; *French Men, Women, and Books*, by M. Betham-Edwards, nineteenth century studies; *The Choice*, by Robert Douglas, in part dialogues on conflicting duties; *Learning and Other Essays*, by John Jay Chapman, marked by much vigor and originality and containing acute criticism of American culture; *Philistine and Genius*, by Dr. Boris Sidis, a trenchant attack upon educational methods; *A Defence of Prejudice and Other Essays*, by John Grier Hibben, the new president of Princeton; *Lectures on Literature*, by various authors, given at Columbia University; *Alchemy of Thought*, by Lawrence Pearsall Jaks; *Old Lamps for New*, by Edward Verrall Lucas; *Spirit of Romance*, by Ezra Pound.

LITERARY BIOGRAPHY. The first place here must be given to the poet laureate, Alfred Austin, whose *Autobiography* from 1835 to 1910 appeared in two large volumes, of which his experiences as a journalist form the most interesting part. The centenaries of Dickens and Thackeray have brought out new and handsome editions of their works, as well as much biographical data, such as, a new copiously illustrated edition of John Forster's *Life of Charles Dickens*; *Charles Dickens in America*, compiled and edited by William Glyde Wilkins; biographical introductions to one of the new editions of Thackeray by his daughter, Lady Ritchie; *Some Aspects of Thackeray*, by Lewis Melville; *The Leaves of the Tree*, consisting of eleven biographical sketches, by A. C. Benson. Robert Louis Stevenson appears in a new form, *The Swanston Edition*, with an introduction by Andrew Lang, and the *Letters* in a definitive edition in four volumes edited by Sir Sidney Colvin.

We have also a *Life of Robert Louis Stevenson*, by Graham Balfour. The memoir of Tennyson by his son is supplemented by a volume: *Tennyson and His Friends*, containing twenty contributions by those who knew him. Here should also be mentioned *Alfred, Lord Tennyson*; *His Homes and Haunts*, by R. G. Ambler. *J. M. Synge and the Ireland of His Time*, is a study of the Celtic movement, by William Butler Yeats. An elaborate study of the life and works of *George Bernard Shaw* has been made by Prof. Archibald Henderson. Frederic Harrison's *Autobiographic Memoirs* are voluminous and form an interesting commentary on the Victorian age. *George Moore in Ave*, which is to be followed by *Salve and Vale*, speaks very frankly of his associates in the Irish literary movement. Three volumes of the year are devoted to Johnson: *Six Essays on Johnson*, by Walter Raleigh; *Samuel Johnson*, by Alice Meynell and G. K. Chesterton; *Dr. Johnson, Lexicographer, Scholar, Man of Letters*, by Alexander Cross. Other English men of letters who have received attention during the year are: *John Ruskin*, a study in personality by Arthur Christopher Benson; *Ruskin*, by Edward Tyas Cook; *Thomas Love Peacock*, a critical study by A. Martin Freeman; *The Life of Thomas Love Peacock*, by Carl Van Doren; *The Life of Robert Browning*, by W. Hall Griffin; *The Brownings*, by Lilian Whiting; *Early Literary Career of Robert Browning*, by Lounsbury; *The Life and Letters of Laurence Sterne*, by Lewis Melville; *Life and Memoirs of John Churton Collins*, by his son L. C. Collins; *Douglas Jerrold and Punch*, by Walter Jerrold; *Letters of Edward John Trelawny*, the friend of Shelley, edited by H. Buxton Forman; *The Life of Henry More*, by Richard Ward; *Correspondence of Jonathan Swift, D. D.*, by F. Elrington Ball; *George Eliot, scenes and people in her novels* by Charles S. Olcott; *Hannah More*, a biographical study, by Annette M. B. Meakin; *Later Letters of Edward Lear*, and *Queery Leary Nonsense*, a Lear nonsense book, both edited by Lady Strachey; *Wordsworth and the English Lake Country*, by Eric Robertson; *The Life of John Oliver Hobbes* (Pearl Mary Teresa Craigie), by her father, John Morgan Richards; *Masters of English Journalism*, a study of personal forces, by T. H. G. Escott; *The Life of Sir William Russell*, by John Black Atkins, a life of the first special correspondent; *The Life of Sir George Newnes*, a most successful journalist, by Hulda Friederichs. Of American literary biography we have: *The Life of Bret Harte*, by Henry Childs Merwin; which contains some account of the California pioneers; *The Life of George Cabot Lodge*, by Henry Adams; *Louise Chandler Moulton*, by Lilian Whiting, the tribute of an ardent friendship; *Letters of Sarah Orne Jewett*, edited by Annie Fields, letters of unusual charm and interest; *Harriet Beecher Stowe*, the story of her life by her son, Charles Edward Stowe, and her grandson, Lyman Beecher Stowe; *The Journals of Ralph Waldo Emerson*, with annotations, edited by Edward Waldo Emerson and Waldo Emerson Forbes, journals dating from Emerson's college days, 1820 to 1832; *Richard Henry Dana, Jr.*, speeches in stirring times and letters to a son, edited by Richard H. Dana (3rd); *Moses Coit Tyler, 1835-1900*, letters and diaries of a frank and unconventional nature, compiled by his daughter, Jessica Tyler Austen; *Forty Years of*

Friendship, correspondence of Ellis Yarnall, a merchant of Philadelphia, from 1856 to 1895, with John Duke, Lord Coleridge, edited by Charlton Yarnall; *Edgar Allan Poe*, a critical study, by Arthur Ransome; *Anglo-American Memories*, by George W. Smalley, American correspondent of the *London Times*; *Reminiscences*, by Goldwin Smith, containing a valuable account of the founding of Cornell University. A few of the most important foreign biographies are: *The Life of Friedrich Nietzsche*, translated from the French of Daniel Halévy; *The Mother of Goethe*, by Margaret Reeka; *Heinrich Heine's Memoirs*, from his works, letters, and conversations, edited by Gustav Karpeles, in one of the letters of which Heine says, "I will tell thee the fairy-tale of my life"; *The Loves of the Poets*, by Richard Le Gallienne, the poets' search for the wonder-woman; *From Memory's Shrine*, the reminiscences of Carmen Sylva (H. M. Queen Elizabeth of Rumania), translated by Edith Hopkirk; *Tolstoy*, by Romain Rolland, author of *Jean-Christophe*; *Two Russian Reformers*, Ivan Turgenev and Leo Tolstoy, by J. A. T. Floyd; *Memoirs of Bertha von Suttner*, translated by Nathan Haskell Dole; *Adam Mickiewicz*, the national poet of Poland, by Monica M. Gardner, a worthy book; *Balzac*, by Frederick Lawton.

GENERAL BIOGRAPHY. Biographies pour forth from the English press year after year in such abundance, that one would think that a large part of the living inhabitants of the British Isles must be engaged in compiling memoirs of the dead. There is space here to give only the titles of some representatives of the various types, and in most cases this is enough, because it is rare to find one that is written with sufficient literary skill to be sought for any other reason than desire for information. One of the most valuable works of the year for historical as well as biographical purposes is that of J. Holland Rose in two volumes, *William Pitt and the National Revival* and *William Pitt and the Great War*, the dividing line between the two volumes being 1791. *The Speakers of the House of Commons*, by Arthur Irwin Dament; *British Statesmen of the Great War 1793-1814*, by J. W. Fortescue; *In and Out of Parliament*, reminiscences of a varied life, by the Right Hon. Robert Farquarson; *Memoirs and Letters of the Right Hon. Sir Robert Morier from 1826 to 1876*, by his daughter, Mrs. Rosslyn Wemyss; *The Right Hon. Hugh Oakley Arnold-Forster*, a memoir by his wife; *The Life of Edward, Earl of Clarendon*, by Sir Henry Craik; *The Life of Spencer Compton, Eighth Duke of Devonshire*, by Bernard Holland; *Henry Fox, First Lord Holland*, by Thaddeus W. Riker; *The Life of Sir Humphrey Gilbert*, by William Gilbert Gosling; *The Real Captain Kidd*, a vindication of his character and career, by Sir Cornelius Neale Dalton; *The Family of Sir Francis Drake*, by Lady Elliott-Drake; *The Gay King, Charles II.*: his court and times, by Dorothy Senior; *King Edward as a Sportsman*, edited by Alfred E. T. Watson; *The Record of an Adventurous Life*, by H. M. Hyndman, giving an inside view of the socialistic movement in England; *Sir Randal Cremer, His Life and Work*, the labor leader and peace advocate, by Howard Evans; *John Redmond: The Man and the Demand*, by L. G. Redmond Howard; *Irish Recollections* by Justin McCarthy; *In Castle and Court House*: being reminiscences of thirty years in Ireland, by Ramsay Colles;

Incidents of My Life, professional, literary, social, with service in the cause of Ireland, by Thomas Addis Emmet; *The Life of Sir Joseph Banks*, president of the Royal Society, with some notices of his friends and contemporaries, by Edward Smith; *Some Pages of My Life*, by Bishop Boyd Carpenter; *Archbishop Maclagan*, Primate of England, by F. D. How; *I Remember*, by Canon Horsley, chaplain of a London prison; *The Russells of Birmingham*, radicals and non-conformists of the eighteenth century, by S. H. Jeyes; *A Duke and His Friends*, the life and letters of the second Duke of Richmond, by his son, the Earl of March; *When Life was New*, by Horace Hutchinson; *Intimate Society Letters of the Eighteenth Century*, edited by the Duke of Argyll; *My Naval Career and Travels*, fifty-eight years of active service, by Sir Edward Seymour; *Recollections of a Long Life*, by Lord Broughton, two more volumes compiled from the Hobbhouse archives, edited by his daughter, Lady Dorchester; *The Life of George Joachim Goschen*, 1831-1907, by the Hon. Arthur D. Elliot; *Notes from the Life of an Ordinary Mortal*, by A. G. Liddell; *Memoirs and Memories*, by Mrs. C. W. Earle, the history of her family extending over one hundred years; *Lady John Russell*, a memoir edited by Desmond MacCarthy and Agnes Russell; *A Diplomatist's Life in Many Lands*, by Mrs. Hugh Fraser; *Lives of the Hanoverian Queens of England*, Vol. II: Charlotte Sophia of Mecklenburg-Strelitz, Amelia Elizabeth Caroline of Brunswick, and Adelaide of Saxe-Meiningen, by Alice Drayton Greenwood; *Mary Tudor*, Queen of France, by Mary Croom Brown; *My Life Story*, by Emily Shareefa of Wazan, an Englishwoman who married a Moorish saint; *The Keeper of the Robes*, by Frank Frankfort Moore, an agreeable and faithful picture of eighteenth-century life and manners; *Mary Wollstonecraft*, a study in economics and romance, by G. R. Stirling Taylor; *The Spanish Journal of Elizabeth, Lady Holland*, edited by the Earl of Ilchester; *The Amazing Duchess*, being the romantic history of Elizabeth Chudleigh, maid of honor, the Hon. Mrs. Hervey, Duchess of Kingston and Countess of Bristol, by Charles E. Pearce; *An Irish Beauty of the Regency*, compiled from *Mes Souvenirs*, the unpublished journals of the Hon. Mrs. Calvert, 1789-1882, by Mrs. Warrenne Blake; *D'Orsay, or the Complete Dandy*, by W. Teignmouth Shore; *The English Court in Exile*, by Edwin and Marian Sharpe Grew, treats of James II. at Saint-Germain. The delightful autobiography of Sir William Butler is the history of a half century of active service closing with the Boer War.

In American biography, as usual, the period of the Civil War predominates. Among the most important books on this period are *William H. Seward*, by Edward Everett Hale, Jr.; *Recollections of Abraham Lincoln*, 1847-1865, by Ward H. Lamon, edited by Dorothy Lamon Treillard; *William Lloyd Garrison*, by Lindsay Swift; *Recollections of Alexander H. Stephens*, by Myrta Lockett Avery; *Stephen A. Douglas*, by Henry Parker Willis; *The Diary of Gideon Welles*, from 1862 to 1869; *Daniel Webster*, a vindication by William Cleaver Wilkinson; *Serving the Republic*, memories of civil and military life, by Gen. Nelson A. Miles, and *Memories of Two Wars*, Cuban and Philippine experiences, by Gen. Frederick Funston, giv-

ing much interesting material on more recent military history. In political annals a remarkable *Autobiography of Thomas Collier Platt* has been compiled and edited by Louis J. Lang; *Fifty Years of Public Service*, personal recollections of Shelby M. Cullom, senior United States senator from Illinois; *As I Remember*, by Marian Gouverneur, recollections of society in Washington political circles during most of the nineteenth century; *Recollections Grave and Gay*, by Mrs. Burton Harrison, gives the impressions of another woman at the Confederate capital of Richmond during the Civil War; *Memories of the White House*, the home life of our Presidents from Lincoln to Roosevelt, by Col. W. H. Crook; *Pioneer Priests of North America*, 1642-1710, by the Rev. T. J. Campbell, S. J., which has reached its third volume; the story of another early missionary is that of *Timothy Flint* pioneer, missionary, author and editor, 1780-1840, by John Ervin Kirkpatrick; *An American Railroad Builder*, John Murray Forbes, by Henry Greenleaf Pearson; *Fifteen Thousand Miles by Stage*, by Mrs. Carrie Adell Strahorn, intimate recollections of travel and experience in the West by the first white woman to visit Yellowstone Park; *My Larger Education*, by Booker T. Washington, a sequel to his *Up from Slavery*; *Edison*, his life and inventions, by E. L. Dyer and T. C. Martin.

Prominent among the biography of other countries is *Martin Luther*, of whom we have two thorough and original studies by American scholars, Arthur Cushman McGiffert and Preserved Smith, the former work being the more extensive of the two; also a monograph on *The Political Theories of Martin Luther*, by Luther Hess Waring. Richard Wagner's *Mein Leben*, of which a few copies were printed during his lifetime but kept secret until the present year, appeared in English translation a few months after its publication in Germany and attracted a great deal of attention. Lives of three leaders of German socialism have appeared in English: Part I of *Bebel's Reminiscences*, 1840-1869; *Ferdinand Lasalle*, by Georg Brandes; *Karl Marx*, by John Spargo. Auguste Fournier's *Napoleon I. A Biography*, a well-balanced and comprehensive work, is translated by Annie Elizabeth Adams, with an introduction by H. A. L. Fisher; and we have also on the same inexhaustible subject: *The Life of Napoleon*, by Arthur Hassall; *Napoleon and His Coronation*, by Frédéric Masson; and *The Tragedy of St. Helena*, by Sir Walter Runciman. *Metternich*, by G. A. C. Sandeman; *Andreas Vesalius*, by O. F. Ball; *A Woman of the Revolution*, by Franl' Hamel; *The Tale of Henry of Navarre*, by John Bloundelle-Burton; *Queen Jeanne of Navarre*, by P. F. William Ryan. G. M. Trevelyan completes his work on Garibaldi with his *Garibaldi and the Making of Italy*; William Roscoe Thayer's *The Life and Times of Cavour* is the most complete and competent biography of Cavour that has appeared in the English language. Guglielmo Ferrero's *The Women of the Cæsars*, on account of its brilliant style and frequent references to modern conditions attracted a large number of readers in England and America, and the same subject is treated by Joseph McCabe in *The Empresses of Rome*. William Archer in *The Life, Trial, and Death of Francisco Ferrer*, ardently cham-



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ANTONIO FOGAZZARO

FOUR AUTHORS WHO DIED DURING 1911

pions the cause of the Spanish anarchist who was executed after the riots in Barcelona. *The Amazing Emperor Heliogabalus*, by J. Stuart Hay, is a vindication of the character of the notorious Roman emperor. *Blücher and the Uprising of Prussia against Napoleon*, 1806-1815, is the first life of Wellington's great colleague in English; *An Imperial Victim*, is Marie Louise, Archduchess of Austria, Empress of the French, and Duchess of Parma, by Mrs. Edith E. Cuthell; *The English Court in Exile*, by Edwin and Marian Sharpe Grew, treats of James II.; *Rachel*, her stage life and her real life, by Francis Gribble; *St. Francis of Assisi and His Legend*, by Prof. Nino Talmassia; *Recollections of a Parisian*, under six sovereigns, two revolutions, and a republic, 1789 to 1863, by Dr. Poumiès de la Siboutie; *William the Silent*, by Ruth Putnam. Biographies of artists: *John La Farge*, a memoir and a study, Royal Cortissoz; *Giotto*, by Basil de Selincourt; *Hogarth* by Edward Garnett; *Blake*, by G. K. Chesterton, *Life of Benvenuto Cellini*, by R. H. Hobart Cust; *Winslow Homer*, by William Howe Downes.

HISTORY. In the records of the year there are few historical works of conspicuous merit. The great coöperative histories that have been characteristic of the past few years have been brought to a close. The text of *The Cambridge Modern History*, which was planned by Lord Acton, and edited by A. W. Ward, G. W. Prothero and Stanley Leathes, was completed last year by Volume XII dealing with *The Latest Age*, and this year a supplementary volume appeared containing genealogical tables and lists, and a general index. Coincident with the completion of this monumental work, there is started another coöperative history on the same extensive scale, *The Cambridge Medieval History*, planned by J. B. Bury and edited by H. M. Gwatkin, and J. P. Whitney. The first volume covers the period of the Christian Roman Empire and the foundation of the Teutonic kingdoms, beginning with Constantine and extending almost to Justinian. In this connection may best be mentioned a work of unusual character: *The Medieval Mind*, by Henry Osborn Taylor, a history of the development of thought and emotion in the Middle Ages, comprising in two volumes the analysis of representative specimens of medieval literature from romance and poetry to law and theology, with generous quotations.

In English history, the most striking, if not the most scholarly, is *The History of England* for boys and girls, in which Rudyard Kipling coöperates with Charles Robert Leslie Fletcher. Mr. Fletcher's *Introductory History of England* in two volumes, showed him to be a pronounced imperialist, well fitted for coöperation with Mr. Kipling, and they have together produced a lively narrative interspersed with effective poems, all intended to train British youth in patriotism of a Tory type. Irish history is conspicuous this year, possibly by reason of the struggle for home rule. *The Battle of the Boyne*, together with an account based on French and other unpublished records of the war in Ireland (1688-1691) and of the formation of the Irish Brigade in the service of France, by Demetrius Charles Boulger; *Ireland under the Normans*, 1169-1216, by Goddard Henry Orpen; *The Legacy of Past Years*, a study of Irish history, by the Earl of Dunraven;

The End of the Irish Parliament, by Joseph R. Fisher; *Revolutionary Ireland and Its Settlement*, by the Rev. Robert H. Murray, the stand of the Irish in favor of James II. against William of Orange, and its results; *A Hundred Years of Conflict*, being a record of the services of the six generals of the Doyle family from 1756 to 1856, by Col. Arthur Doyle; *The Olive Branch in Ireland*, by William O'Brien, the history of the political relations between Ireland and the imperial government from Parnell to Asquith, discussed in a reasonable and genial spirit; *Irish Nationality*, a general history from the earliest times to the present, by Alice Sophia Amelia (Stopford) Green; *The War in Wexford*, by Harold Felix Baker Wheeler and Alexander Meyrick Broadley. On Scotland and Wales we have: *A History of Wales*, from the earliest times to the Edwardian conquest, in two volumes, by John Edward Lloyd, an authoritative work; *The Awakening of Scotland*, a history from 1747 to 1797, by William Law Mathieson; *The Making of Scotland*, by Sir Herbert Maxwell; *Controversial Issues in Scottish History*, by William Henry Gregg. In the voluminous *Victorian History of the Counties of England*, the fourth volume on Hampshire and the Isle of Wight, and the fourth volume on Lancashire have appeared. *Gordon at Khartoum*, by Wilfred Scawen Blunt, is like the author's *Secret History of the English Occupation of Egypt*, chiefly an arraignment of the British administration; *Scots in Canada*, by J. Murray Gibbon, is an enthusiastic glorification of the Scottish race in the New World; *England under the Hanoverians*, by C. Grant Robertson, the real beginning of parliamentary government in England under Walpole and its subsequent history. *The Customs of Old England*, by F. J. Snell; *The University of Cambridge*, by James Bass Mullinger, reaches its third volume, from the election of the Duke of Buckingham to the chancellorship in 1626 to the decline of the Platonist movement. *The King's Serjeants and Officers of State*, with their coronation services, by J. Horace Round, was called out by the recent coronation of George V. *Industrial England in the Middle of the Eighteenth Century*, by Sir Henry Trueman Wood, is the story of the coming of modern England, and the marvelous changes made in less than a century and a half. *The Republican Tradition in Europe*, by Herbert Albert Laurens Fisher, lectures delivered at the Lowell Institute, is an argument for constitutional monarchy. *A History of the Peninsular War*, by Charles Oman, reaches its fourth volume, December, 1810, to December, 1811, Masséna's Retreat, Fuentes de Onoro, Albuera, Tarragona. In the Far East we have *A History of the Great Moghuls*, Vol. II., 1605 to 1739, by Kennedy; *Indian Unrest*, by Valentine Chirol; *The Story of Korea*, by Joseph H. Longford, an able history of the Hermit Kingdom; *Famous Sea Fights from Salamis to Tsushima*, by John Richard Hale; *The History of Japan*, by James Murdoch, from the origins to the arrival of the Portuguese, in 1542; Gubbins' *The Progress of Japan*; *International Relations of the Chinese Empire*, a comprehensive history by Hosea Ballou Morse. In Italian history there are several noteworthy works: *Heroines of Genoa and the Riviera*, by Edgumbe Staley; *Venice in the Thirteenth and Fourteenth Centuries*, by F. C. Hodgson; *Sixtine Rome*, by J.

A. F. Orbaan; *Venice in the Eighteenth Century*, by Monnier; *Medieval Sicily*, by Cecilia Waern; *Little Cities of Italy*, by André Maurel; *Women in Italy*, "from the introduction of the chivalrous service of love toward the end of the thirteenth century" to the appearance of the professional actress toward the end of the sixteenth, by William Boulting; *History of Rome and of the Popes in the Middle Ages*, by Hartmann Grisar. In German history we have: *The House of Hohenzollern*, two centuries of Berlin court life, by E. A. Brayley Hodgetts; *The History of German Civilization*, by Ernst Richard, a general survey; *The History of Russia*, by V. O. Kluchevsky, translated by C. J. Hogarth. Easily first among the histories of France, is the vivid study by Cécile Hugon of *Social France in the XVII. Century*; *The French Ideal*: Pascal, Fénelon, and other essays, by Madame Duclaux, historical studies of the best and most elevating French thought; *France Under the Republic*, by Jean C. Bracq, contemporary French history; *Comedy and Tragedy of the Second Empire*, by Edward Legge; *The French Revolution*, by Lord Acton; *The French Revolution*, by Francis Victor Alphonse Aulard; Classical: *Essays on Roman History*, by Henry Pelham, fourteen papers of scholarly research, edited by F. Haverfield; *Classical Rome*, by Henry Stuart Jones, an excellent general manual; *Influence of Wealth in Imperial Rome*, by William Stearns Davis. *The Roman Empire*, by Frederick William Busell; *Romance of Imperial Rome*, by Elizabeth Champney; *A Roman Frontier Post and Its People*, by James Curle; *Outdoor Life in Greek and Roman Poets*, by Evelyn Martinengo Cesaresco; *The Silver Age of the Greek World*, by John Pentland Mahaffy; *Thucydides and the History of His Age*, by G. Grundy, surpasses his former illuminating work on *The Greco-Persian War*, and throws light upon the personalities of the time; *Hellenistic Athens*, an historical essay, by William Scott Ferguson, treats of the decline and fall of Athens; *The Greek Commonwealth*, politics and economics in fifth-century Athens, by Alfred E. Zimmern, the political phase of Periclean Athens; *Greece and the Greeks*, by Z. Duckett Ferrihan. Professor Mosso's *Dawn of Mediterranean Civilization* has been translated by Marian C. Fisher; *Ancient Italy*, by Ettore Pais, translated by C. Densmore Curtis, comprises historical and geographical investigations in central Italy, Magna Græcia, Sicily, and Sardinia. *Ancient Hunters and Their Modern Representatives*, by W. J. Sollas, a study of Paleolithic culture; *In the Time of the Pharaohs*, by Alexander Moret, a popular account of ancient Egyptian civilization; *The Revolutions of Civilization*, by William Mathew Flinders Petrie, a succession of waves in ancient civilizations; *In the Land of the Pharaohs*, by Duse Mohamed, a short history of Egypt by an Egyptian; *History of the Ancient World*, by G. W. Botsford. The new *History of Babylonia and Assyria*, from prehistoric times to the Persian conquest, begins with a volume on the period preceding the foundation of the Babylonian monarchy, by Leonard William King, entitled *History of Sumer and Akkad*.

In American history we have two very diverse views of the Revolutionary War and the character of Washington: *The First American Civil War*, first period 1775-1778, by Henry Belcher,

is savagely anti-American in its tone, and bitterly partisan; *The Revolutionary War and the Military Policy of the United States*, by Gen. Francis Vinton Greene, a competent authority on military matters, praises Washington as a leader, and vigorously refutes the criticism voiced by the contrasting book of Mr. Belcher; in *Studies, Military and Diplomatic, 1775-1865*, by Charles Francis Adams, is another disparaging estimate of Washington's ability. *The Beginnings of the American Revolution*, by Ellen Chase, is based upon contemporary letters, diaries, and other documents. The part of *France in the American Revolution* forms the subject of a book by James Breck Perkins. *The Dutch Republic and the American Revolution* is by Frederick Edler. In colonial days we find: *Indian Wars of New England*, by Herbert Milton Sylvester, in three volumes; *The Quakers in the American Colonies*, by Rufus M. Jones and others; *The Origin and Growth of the American Constitution*, by Hannis Taylor, an able work by a former minister to Spain; *New Jersey as a Royal Province, 1738 to 1776*, by Edgar Jacob Fisher; *Narratives of Early Carolina, 1650-1708*, edited by Alexander S. Salley, Jr.; *Louisiana under the Rule of Spain, France, and the United States, 1785-1807*, edited by James Alexander Robertson; *California under Spain and Mexico*, by Irving Berdine Richman; *Narratives of Early Maryland, 1633-1684*, edited by Clayton Coleman Hall; *Pennsylvania in American History*, by Samuel Whitaker Pennypacker; *The Records of the Federal Convention of 1787*, edited by Prof. Max Farrand of Yale University. The period of the Civil War is apparently inexhaustible in materials for monographs and more extended histories: *The Presidential Campaign of 1860*, by Emerson David Fite; *Kansas in the Sixties*, by Samuel J. Crawford; *On the Trail of Grant and Lee*, by Frederick Trevor Hill; *Statesmen of the Old South*, from radicalism to conservative revolt, by William E. Dodd, studies of Davis, Jefferson, and others from the Southern point of view; *Gettysburg*, by Robert K. Beecham, an officer in the famous "iron brigade"; *Campaign of Chancellorsville*, a strategic and tactical study, by John Bigelow, Jr. *The Relations of the United States and Spain*, by French Ensor Chadwick, treats of the Spanish-American War. *An American History*, by David Saville Muzzey, is a compact and well-balanced narrative. *Social Forces in American History*, by Algie Martin Simons, is a review of social progress. *A Short History of the United States Navy*, by George Ramsey Clark and others, is a careful piece of work. On South America we have: *The Incas of Peru*, by Sir Clements Markham; *Uruguay*, by W. H. Koebel, a comprehensive work.

TRAVEL AND CONTEMPORARY HISTORY. Fortunately for our understanding of the revolutionary changes now taking place in China, the literature in this field has been very abundant for several years. There is something to suit every need and taste, from statistical reports and doctors' dissertations to lively travel sketches. Dr. Chen Huan-chang has made at Columbia University a thorough study of *The Economic Principles of Confucius and His School*, in two volumes, which includes some interesting comparisons between Chinese and Western civilization. Three American travelers have produced volumes of more interest than

ordinarily attaches to observations based on brief residence: *The Changing Chinese*, by Edward Alsworth Ross, sociologist of the University of Wisconsin; *The Obvious Orient*, by Albert Bushnell Hart, historian of Harvard; and *The West in the East*, by Price Collier, a journalistic view of India, China, and Japan which has proved the most popular of the travel books of the year. An intimate view of one of the most remarkable women rulers of the world's history is given in *Two Years in the Forbidden City*, by Princess Der Ling (Mrs. Thaddeus C. White), First Lady-in-Waiting to the Empress Dowager. This forms an admirable complement to the interesting volume published last year by Bland and Backhouse, *China under the Empress Dowager*. *The Eighteen Capitals of China*, by William Edgar Geil, gives graphic portraits of the chief cities of the Middle Kingdom. *Eastern Asia*, by Ian C. Hannah, comprises in a single volume, the ancient and modern history of China, Japan, and India, as well as of the smaller islands and dominions. A comprehensive and attractively written volume is William Elliot Griffis' *China's Story in Myth, Legend, Art and Annals*. *The Face of Manchuria, Korea, and Russian Turkestan*, by E. G. Kemp is, as the title confesses, superficial, but is interesting as giving a woman's impressions of these rapidly changing regions. We have two records of personal experiences covering the period from the Tai-ping rebellion to the present revolution: *Gleanings from Fifty Years in China*, by the late Archibald Little; and *Half a Century in China*, by Archdeacon Moule. *The Surgeon's Log*, being impressions of the Far East, by J. Johnston Abraham. Three books on the religions of China are: *The Religion of the Chinese*, by J. J. M. Degroot; *The Religions of Eastern Asia*, by Horace Grant Underwood; and *Studies in Chinese Religion*, by E. H. Parker. Other works on China are: *The Chinese at Home*, by J. Dyer Ball; *The Coming China*, by Joseph King Goodrich, professor in the Imperial Government College, Kyoto; *Across China on Foot*, by Edwin J. Dingle; *China and the Far East*, by George H. Blakeslee; *Lion and Dragon in Northern China*, by R. F. Johnston. Japan, a few years ago one of the most conspicuous of countries, has now been almost eclipsed in popular interest by China. We have this year: *The Full Recognition of Japan*, by Robert P. Porter; *Some Statistics of Japan*, by Charles V. Sale; *Behind the Screens in Japan*, by Evelyn Adam; *Highways and Homes in Japan*, by Kate, Lady Lawson; *Rare Days in Japan*, by George Trumbull Ladd; *Eastern Voyage*, by Fritz von Hochberg; *The Japanese Empire*, and its economic conditions, by Joseph Dautremere.

Books on India, as usual, treat chiefly of sport and politics; *India Under Curzon and After*, by Lovat Fraser, a comprehensive discussion of English interests in eastern and western Asia; *Among Indian Rajahs and Ryots*, by A. H. Fraser; *The Position of Women in Indian Life*, by the Maharani of Baroda and N. M. Mitra; *Sport on the Nilgiris and in Wynad*, by F. W. F. Fletcher; *The Awakening of India*, by Ramsay MacDonald; *Indian Unrest*, by Valentine Chirol; *Forest Life and Sport in India*, by Sainthill Eardley-Wilmot; *Twenty Years in the Himalaya*, by Charles Granville Bruce; *Modern India*, by Sir John David Rees; *The Call of the Snowy Hissar*, by Fanny Bul-

lock Workman and William Hunter Workman; *Stalks in the Himalaya*; jottings of a sportsman-naturalist, by E. P. Stebbing; *Adventure, Sport, and Travel on the Tibetan Steppes*, by W. N. Ferguson; *A Vagabond in the Caucasus*, by Stephen Graham. *Java, Sumatra and the Other Islands of the Dutch East Indies*, by A. Caboton; *Seventeen years among the Sea Dyaks of Borneo*, by Edwin Herbert Gomes. Australian life, Persia and the Near East attract much attention of late, but books on the subject are not so numerous this year as last; *Life in the Moslem East*, by Pierre Ponafidine, the Russian consul-general at Constantinople, translated by his wife; *Through Persia in Disguise*, with reminiscences of the Sepoy Rebellion, by Col. Charles E. Stewart; *The Emir of Bokhara and His Country*; Journeys and studies in Bokhara (with a chapter on My Voyage on the Amu Darya to Khiva), by O. Olafsen; *Consuls in the Caucasus*; *The Diary of a Sporting Holiday*, by Agnes Herbert; *The Persian Revolution of 1905-1909*, by Edward G. Browne; *Palestine and Its Transformation*, by Ellsworth Huntington, an unusually valuable study of an old field; *Studies in Galilee*, by Ernest W. Gurney Masterman; *Palestine*, by G. E. Franklin; *A Journalist in the Holy Land*, glimpses of Egypt and Palestine, by Arthur E. Copping; *The Holy Land*, by Robert Hichens. Of general Asiatic travel, besides the volumes of Collier and Hart mentioned above, we have: *An Eastern Voyage*, by Count Fritz von Hochberg; *An Eastern Miscellany*, by the Earl of Ronaldshay; *Around the Black Sea*, by William Eleroy Curtis. The Turkish empire, in Europe and Asia, receives much attention: *Turkey and Its People*, by Sir Edwin Pears, a resident in Constantinople for nearly forty years, especially interested in Bulgaria; *The Danger Zone of Europe*, by H. Charles Woods, discussing changes and problems in the Balkans and Asia Minor; *Regilding the Crescent*, by F. G. Afialo, a gossip and cursory account of the rise of Young Turkey; *Turkey of the Ottomans*, by Lucy M. Garnett, the latest of a series of popular volumes on life in various countries; *Through Savage Europe*, by Harry DeWindt, chiefly dealing with Servia; *From Constantinople to the Home of Omar Khayyám*, by A. V. Williams Jackson, the observations of a traveler competent to interpret what he sees, whether old or new; *The Land of Uz*, by Abdullah Mansar; *Walls of Constantinople*, by B. Granville Baker, *Twixt Sand and Sea*, by Cyril Fletcher Grant and L. Grant, description of the ruins and modern conditions in Tunis and Algeria, with abundant photographs; *England in the Soudan*, by Jacob Artin.

While travelers are eagerly seeking the remote corners of the world there seems to be at last a slackening in the immense flood of books which in recent years has poured forth from the press descriptive of the familiar tourist routes. Even Italy, which is ordinarily productive of more pages of print than any other country, is represented this year by comparatively few volumes, none of unusual interest: *Venice and Venetia*, by Edward Hutton; *Italian Castles and Country Seats*, by Mrs. Tryphosa Bates Batcheller; *My Italian Year*, by Richard Bagot; *Sicily in Shadow and Sun*, by Maud Howe; *American Housebuilding in Messina and Reggio*, treating of the restoration work after the great earthquake, by Lieut.-Com. Reginald

Rowan Belknap; *A Roman Pilgrimage*, by Ellis Roberts; *Through the Alps to the Apennines*, by P. G. Konody; *The New Italy*, by Federico Garlanda, translated by M. E. Wood; *The Valley of Aosta*, by Felice Ferrero, an Alpine valley little known; *The Ideal Italian Tour*, by Henry James Forman, an admirable volume of impressions; *Little Cities of Italy*, by André Maurel, information at first hand; *Florence Past and Present*, by the Rev. J. Wood Brown; *Famous Castles and Palaces of Italy*, by Edmund B. D'Auverge. Spain attracts more attention year by year: *Spain*, by Albert F. Calvert; *Unexplored Spain*, by Abel Chapman and Walter Buck; *The Spaniard at Home*, by Mary F. Nixon-Roulet; *Heroic Spain*, by E. Boyle O'Reilly; *Spain from Within*, by Raphael Shaw; *Four Months Afoot in Spain*, by Harry Alverson Franck; *The Truth about Spain*, by G. H. B. Ward, strongly Protestant in tone; *Valencia and Murcia*, by Albert Frederic Calvert, a glance at African Spain; *Things Seen in Spain*, by C. Gasquoine Hartley; *Spanish Journal*, by Lady Holland; *Unexplored Spain*, by A. Chapman and W. J. Buck; *The Cathedrals of Spain*, something more than an architectural guide-book, by John Allyn Gade; *The Magic of Spain*, by Aubrey F. G. Ball. Other books on foreign countries include: *Paradise in Portugal*, by Mark Sale; *Greece and the Greeks*, by Z. Duckett Ferriman; *Switzerland*, by Oscar Kuhns; *Dolomites*, a tour in the Alps, by Sam Hield Hamer; *Belgium of the Belgians*, by Demetrius Charles de Kavanagh Boulger; *The Spell of Holland*, by Burton E. Harrison, entertaining sketches; *Home Life in Holland*, by D. S. Meldrum, giving more of the real life of the country; *Rural Denmark and Its Lessons*, by Sir H. Rider Haggard, a study of the causes of the prosperity of Danish agriculture; *In the Kaiser's Capital*, by James F. Dickie; *Brittany and the Bretons*, by George Wharton Edwards; *In the Rhone Country*, by Rose Georgina Kingsley; *Real France*, by Laurence Jerrold; *French Men, Women and Books and Unfrequented France*, by Miss Betham-Edwards; *The Russian People*, by Maurice Baring; *Undiscovered Russia*, by Stephen Graham; *St. Petersburg*, by George Dobson; *Letters from Finland, 1808-1809*, by Rosalin Travers; *The Southern Slav Question*, by R. W. Seton-Watson.

The effort to induce the English people to "think imperially" is shown in the systematic production of works descriptive of the British empire, like the "All Red Series," of which the third volume, by L. Griffith, is devoted to the *Dominion of Canada*; and the *Historical Geography of the British Colonies*, of which the fifth volume contains *Canada and Newfoundland*, by J. D. Rogers; *Labrador—Its Discovery, Exploration and Development*, by W. C. Goslin; *On the Wallaby through Victoria*, by E. M. Clowes, feminine views of life in Melbourne; *Sunny Australia*, impressions of the country and its people, by Archibald Marshall. *We of the Never-never*, by Jeannie Gunn; *Down North on the Labrador*, by Dr. Wilfred T. Grenfell; *British Dominions*, commercial and industrial conditions, by various authors, edited by W. J. Ashley; *An Englishman in Ireland*, by R. Scott-Jones; *Home Life in Ireland*, by Robert Lynd; *The Ocean Empire*, its dangers and defense, from a British standpoint, by Gerard Fienness; *A Book of the Wye*, by Edward

Hutton; *Windsor: The Castle of Our Kings*, and some notes concerning Eton College, by Arthur Goddard; *The Kent Coast*, by Arthur D. Lewis; *The Place-Names of Berkshire*, by the Rev. Walter Skeat, and *The Place-Names of Berkshire*, an essay by F. M. Stenton; *A Study in Nationality*, by the Rev. J. Vyrnwy Morgan, a dispassionate view of Wales and the Welsh; *Wordsworthshire*, an introduction to the poet's country, by Eric Robertson; *Rowlandson's Oxford*, by A. Hamilton Gibbs, airily happy sketches; *Romance of Oxford Colleges*, by Francis Henry Gribble; *By Fell and Dale at the English Lakes*, by H. D. Rawnsley, essays descriptive of walks in springtime; *Glamour of Oxford*, by William Angus Knight; *Relics and Memorials of London Town*, by James S. Ogilvey; *Highways and Byways in Cambridge and Ely*, by John William Edward Conybeare. *The Imperial Conference*, a history and a study by Richard Jebb, an ardent imperialist. In the field of Polar exploration, we must first mention Fridtjof Nansen's history of Arctic exploration from the remotest antiquity to the beginning of the sixteenth century, in two volumes of about 800 pages, entitled *In Northern Mists*, the story of the second French South Polar expedition 1908-1910, is told in *The Voyage of the Why Not?*, by Dr. Jean Charcot. A hunter's explorations for wild sheep in the sub-Arctic Mountains, is told in *The Wilderness of the Upper Yukon*, by Charles Sheldon; *My Climbing Adventures in Four Continents*, by Samuel Turner. North American travel is more scanty than usual: *Impressions of Mexico* with brush and pen, by Mary Barton, an attractive book; then come three volumes on Canada; *A Fisherman's Summer in Canada*, by Frederick George Afalo; *Canada and the Empire*, by W. R. Lawson; *Highways and Byways of the Great Lakes*, by Clifton Johnson; *River and I*, by John Gneisenau Neihardt, a delightful story of a trip on the Missouri River; *The Grand Canyon of Arizona* and *The Wonders of the Colorado Desert*, by George Wharton James; *Old Indian Trails*, by Mary T. S. Schaeffer.

On the countries south of us we have: *A Recent View of Uruguay* by W. H. Koebel; *Panama*, the canal, the country, and the people, by Albert Edwards, containing something of the earlier history of the Isthmus; *South America To-day*, by George Clémenceau, travel sketches by a veteran French journalist; *Brazil*, by Pierre Denis; *Ten Republics*, by Robert P. Porter; *Across South America*, by Hiram Bingham; *Search for the Apex of America*, by Annie Smith Peck; *Unknown People in an Unknown Land* (Paraguay; Argentine Plains, and Andine Glaciers), by Walter Larden; *Argentina in the Twentieth Century*, by Alberto B. Martinez and Maurice Lewandowski; *Argentine Republic*, by A. Stuart Pennington. A few of the more important books on Africa are: *Black and White in South-East Africa*, by Maurice S. Evans; *South Africa Today*, by Hamilton Fyfe; *A Holiday in South Africa*, by Sir H. Mortimer Durand; *The Baganda*, an account of their native customs and beliefs, by John Roscoe; *An Englishwoman's Twenty-five Years in Tropical Africa*, by George Hawker; *My Journey from Rhodesia to Egypt*, by Theodore Kassner; *Service and Sport in the Soudan*, by D. C. E. Comyn; *Five Years in the Soudan*, by Edward Fothergill; *The Big Game of Africa*, by Richard Tjader; *In the Heart of Africa*, by Adolphus

Frederick of Mecklenburg; *Land of the White Helmet*, by Edgar Allen Forbes; *Uganda for a Holiday*, by Sir Frederick Treves; *Egypt*, by Sir Gaston Camille Charles Maspero; *A Motor Flight through Algeria and Tunisia*, by Emma Burbank Ayer; *Lassoing Wild Animals in Africa*, by Guy H. Scull; *An Outpost in Papua*, by Arthur Kent Chignell, brightly written missionary experiences.

RELIGION. Among the more important works on primitive and non-Christian religions are: The third edition of J. G. Frazer's *The Golden Bough*, now expanded to six parts of one or two volumes each, of which four have now appeared, the latest dealing with *The Magic Art and Taboo*; *Marriage, Totemism, and Religion*, an answer to critics by Lord Avebury; *Osiris and the Egyptian Resurrection*, by E. A. Wallis Budge; *Oriental Religions in Roman Paganism*, by Franz Cumont, with an introductory essay by Grant Showerman; *Aspects of Religious Belief and Practice in Babylonia and Assyria*, by Morris Jastrow Jr.; *Handbook of Greek Religion*, by Arthur Fairbanks; *Religious Experience of the Roman People*, from the earliest times to the age of Augustus, by William Warde Fowler; *Two Religions of Israel*, with a re-examination of the prophetic narratives and utterances, by Thomas Kelly Cheyne; *Aspects of Islam*, by Duncan Black MacDonald; *Myths and Legends of the Celtic Race*, by Thomas William Hazen Rolleston; *Survivals in Belief among the Celts*, by George Henderson; *Folk-Lore of West and Mid Wales*, by Jonathan Ceredig Davies; *The Soul of the Indian*, by Charles Alexander Eastman, himself an Indian. The spiritual philosophy of Prof. Rudolf Eucken of Jena is attracting more attention in this country since he received the Nobel prize for idealistic literature in 1908. Of Eucken's works we now have in English; *Christianity and the New Idealism*; *Religion and Life*; and *The Truth of Religion*. The controversy over the historicity of Jesus, raging in Germany, makes its appearance in English in Arthur Drews's *The Christ Myth*, translated by C. Delisle Burns; in opposition to which we have such works as: *The Historic Christ in the Faith of To-day*, by William Alexander Grist; *Jesus According to Saint Mark*, by J. M. Thompson; *The Kingdom and the Messiah*, by E. F. Scott; *Miracles in the New Testament*, a study of evidence, by J. M. Thompson. The application of Christianity to the problems of modern life continues to be the foremost subject of discussion; *The Social Basis of Religion*, by Simon N. Patten; *Socialism in Church History*, by Conrod Noel; *The Function of the Church in Modern Society*, by William Jewett Tucker; *The Contagion of Character*, by Newell Dwight Hillis; *The Social Task of Christianity*, by Samuel Zane Batten; *The Church and the Individual*, by Frank Isley Paradise; *The Ethics of Jesus*, by Henry Churchill King; *Theology and the Human Problem*, by Eugene William Lyman; *The Country Church and the Rural Problem*, by Kenyon L. Butterfield; *The Call of the Carpenter*, by Bouck White. Of the many works of biblical criticism and the history of the Christian church, only a few may be mentioned: *Introduction to the Literature of the New Testament*, by James Moffatt; *The Old Testament in the Light of the Ancient East*, by Alfred Jeremias; *History of Old Testament Criticism*, by Archibald Duff; *History of*

New Testament Criticism, by F. C. Conybeare; *The Spirit of Power*, as seen in the Christian church of the second century, by Arthur Ernest Edgehill; *Origin and Development of the Christian Church in Gaul*, during the first six centuries of the Christian era, by Thomas Scott Holmes; *Lollardy and the Reformation in England*, by James Gairdner, Vol. III; *The Principles of the Reformation*, practical and historical, by Henry Wace; *History of Nonconformity*, from Wiclif to the close of the nineteenth century, Vol. I., from Wiclif to the Restoration, by Henry W. Clark; *Dawn of Modern England*, being a history of the Reformation in England, by Carlos B. Lumsden; *The History of Pope Boniface VIII. and His Times*, by Eugene T. Donnelly. Other important works on religion are: *A Dictionary of Christian Biography and Literature*, by Henry Wace and William C. Piercy; *The Ideal of Jesus*, by William Newton Clarke; *English Literature in Account with Religion*, by Edward Mortimer Chapman; *A Valid Religion for the Times*, by Parley P. Womer; *Religion and Immortality*, by Goldsworthy Lowes Dickinson; *The Psychology of Religious Experience*, by Edward Scribner Ames; *Essays in Theology and Related Subjects*, a testimonial to Charles Augustus Briggs; *Christianity and the Modern Mind*, by Samuel McComb; *Captains and Comrades in the Faith*, by Randall Thomas Davidson, Archbishop of Canterbury; *Divine Transcendence and Its Reflection in Religious Authority*, by J. R. Illingworth; *The World a Spiritual System and the Basal Beliefs of Christianity*, by James H. Snowden; *Cardinal Elements of the Christian Faith*, by D. S. Adam; *The Spiritual Sequence of the Bible*, by John Gamble; *The Church and the Divine Order*, by John Oman; *The Mishna on Idolatry*, by W. A. Elmalie; *Creed and the Creeds*, by J. H. Skrine.

REFERENCE WORKS. The most important book of the year is undoubtedly the eleventh edition of the *Encyclopædia Britannica*. This is virtually the first edition since the ninth (1875-1888), for the tenth was not rewritten, but merely a reissue of the ninth with a supplement. The work was begun under the auspices of the London Times and published by the Cambridge University Press. It comprises 40,000 articles, 44,000,000 words, 7000 text illustrations, 450 full-page plates, and 569 maps, prepared by 1500 specialists of 21 countries under the direction of a permanent editorial staff, in London and New York, of 64 members. The advance cost of the production is stated to have been \$1,500,000. India paper was used, thus reducing the shelf length of the 29 volumes from 7 feet to 28 inches and the weight from 240 pounds to less than 80. This thin paper edition, though more expensive, was preferred by 85 per cent. of the purchasers. The reviews of the Catholic periodicals in this country, notably *America*, criticised it severely for its treatment of Catholic topics. On the other hand, the London *Tablet* defended the work and pointed out that Catholic authors had been called upon to a greater extent than ever before to contribute to the *Encyclopædia*. For fuller and more authoritative exposition of the doctrines, history, and organization of the Roman Catholic Church, the reader will naturally refer to the *Catholic Encyclopædia*, which was mentioned in the NEW INTERNATIONAL YEAR BOOK

for 1908 and which has now reached its twelfth volume. *The New Schaff-Herzog Encyclopedia of Religious Knowledge*, edited by Samuel Macauley Jackson, Charles Colebrook Sherman, and George William Gilmore, has reached the eleventh of its twelve volumes. This standard library of ecclesiastical information has been completely revised and brought up to date by a large amount of new material. *The Encyclopedia of Religion and Ethics*, edited by James Hastings, a work of similar extent and even wider range of topics, is now in its third volume and is distinguished by the same scholarship and modernness as the editor's *Dictionary of the Bible*, completed three years ago. The *Oxford English Dictionary*, edited by Sir James A. H. Murray, is well along toward the completion of its eighth big volume and the letter S. Since this enormous work is beyond the reach of most book buyers. A handy volume has been prepared from it by H. W. and F. G. Fowler. *The Concise Oxford Dictionary of Current English*, which makes a generous use of illustrative quotations. A new work of great importance is the *Cyclopedia of Education*, to be completed in five large volumes, of which two appeared in 1911. The editor, Prof. Paul Monroe of Columbia University, has enlisted the services of several hundred specialists, with the aim of presenting a complete summary of the history, methods, and aims of education in all its various forms. The *Cyclopedia* will not be so extensive as that edited by Professor Rein of Jena, but is intended to be quite as comprehensive and will have the advantage over the German work of possessing the American point of view and giving special attention to American topics.

Here it is convenient to refer to one of the most remarkable literary movements of the last few years, the production of new and standard works in neat handy volumes, well enough printed, at the cost of a shilling in England. *Everyman's Library*, now containing 600 titles, is said to have sold more than ten million volumes in six years, mostly reprints of famous English fiction, history, biography, essays, poetry, philosophy, and theology, and translations from ancient and modern languages. The *Manuals of Science and Literature*, published by the Cambridge University Press, and the *Home University Library* are, on the contrary, composed entirely of new works written for the purpose of giving to the general reader the results of modern scholarship on scientific, sociological, literary, and historical questions. *Harper's Library of Living Thought* is a similar series of brief contributions to current topics.

MISCELLANEOUS. A survey of the literature of the year would not be complete without reference to the very large class of books which are commonly ignored by the critics but which sell widely and exert a great influence over the thought of the times. These books will have to be considered collectively by subjects, because any popular demand brings out many volumes almost equally serviceable, but rarely distinguished by any marked superiority in style or originality in treatment. Books on the applied arts and sciences are always in demand, especially the development of new fields, such as electricity, water power, automobiling, aeroplanes, and concrete construction. Municipal

problems, such as sanitation, city planning, park improvement, and the cost of living, receive much attention. Magazines and books relating to hygiene and physical culture are popular as ever, and while there has been no perceptible diminution in the number devoted to the advocacy of some eccentricity of diet or mode of life, yet there seems to be more of a demand than formerly for books based upon the accepted principles of medical science. The first enthusiasm for psychotherapy seems to be somewhat abated, and the books on this subject now most read treat of it from a historical standpoint, such as *Three Thousand Years of Mental Healing*, by George Barton Cutten, and *Scientific Mental Healing*, by Henry Addington Bayley Bruce. The increased attention given to domestic science in the colleges and high schools is shown by the development of the literature of the subject, and especially by the favorable reception given to reforms in the traditional methods of the kitchen. *Soyer's Paper-bag Cookery* sold like a novel, and the fireless cooker has come quickly into general use. The advocacy by the leading women's magazines and by the Society for Moral and Social Prophylaxis of a greater frankness in instructing the young in sexual matters has created a strong demand for reliable and inoffensive books on sex hygiene for boys and girls. Books on nature study, especially birdlore, and on country and suburban life, especially horticulture and chicken-raising, are numerous and generally attractively illustrated. *The Practical Flower Garden*, by Helena Rutherford Ely, was one of the most successful of its class. Books on the conduct of life, particularly of the "inspirational" or "uplift" type, maintain the popularity of former years; among the more prominent are: *The Manual of Spiritual Fortification*, an anthology collected by Louise Collier Wilcox; *The Miracle of Right Thought, Getting On and Self-Interest*, by Orison Swett Marden, and all of Arnold Bennett's witty essays. *How to Live on Twenty-four Hours a Day, The Human Machine, and Mental Efficiency*.

In this article we have attempted to mention books likely to be of interest to the general reader. Special bibliographies will be found in such articles as PHILOSOPHY, PSYCHOLOGY, POLITICAL ECONOMY, PHILOLOGY.

LITTLE, CHARLES JOSEPH. An American theologian and educator, died March 11, 1911. He was born in Philadelphia in 1840 and graduated from the University of Pennsylvania in 1861. He afterwards studied at the University of Berlin. He was ordained to the Methodist Episcopal ministry in 1862. After filling pastorates in Newark, Del., Philadelphia, and Springfield, Pa., he was teacher in mathematics in Dickinson Seminary from 1867 to 1869. During 1872-1874 he was pastor of Christ Church, Philadelphia. In the latter year he was appointed professor of philosophy and history in Dickinson College. He occupied this position until 1885, when he became professor of logic and history in Syracuse University. In 1891 he was chosen professor of historical theology in the Garrett Biblical Institute and in 1895 became president of this institution. From 1882 to 1885 he was librarian of the Pennsylvania State Library. He was the author of *Christianity in the Nineteenth Century* (1900), and *The Angel in the Flame* (1904).

LIVERPOOL. See ARCHITECTURE.

LIVESTOCK CENSUS. See AGRICULTURE.

LOAN AND TRUST COMPANIES. The development of loan and trust companies during the last fifteen years has been one of the most striking features of the remarkable development of American banking institutions. From 246 in 1898 and 683 in 1905, they increased to 1091 in 1910 and to 1251 on June 1, 1911. Their aggregate resources increased in three years from \$2,865,600,000 in 1908 to \$4,665,110,000 in 1911. Their loans and discounts aggregated \$2,429,421,000, an amount nearly equal to that held by the 12,800 State banks. About 50 per cent. of these loans were secured by collateral other than real estate and about 16 per cent. by real estate, including mortgages. Their investments in bonds and securities amounted to \$1,114,778,000, of which 33 per cent. were railroad bonds, 20 per cent. bonds of other public service corporations, and 17 per cent. State, county, and municipal bonds. The capital, together with surplus and undivided profits, amounted to \$994,652,000, and their individual deposits to \$3,295,855,000. Of the deposits 25 per cent. were in savings accounts. These companies reported 4,487,000 depositors, of whom 2,632,000 were savings depositors. The interest paid on savings deposits averaged 3.74 per cent., and that on other individual deposits 2.89 per cent.

These banking institutions are found all over the country, but the greatest number and those with the greatest resources are found in New York and neighboring Eastern States. Thus in 1911 there were 172, with resources of \$581,700,000 in the New England States; 487, with resources of \$2,769,000,000, in the Eastern States; 180, with resources of \$152,310,000,000, in the Southern States; 308, with resources of \$1,075,000,000, in the Middle Western States; 65, with resources of \$39,496,000, in the Western States; and 39 with resources of \$46,702,000, in the Pacific States.

CLEARING. Following the panic of 1907 there was considerable demand that the New York trust companies be brought under closer regulation and into closer connection with the rest of the banking world. They had been the storm centre of that panic, and one or two of the largest were saved only by the action of the associated banks. They had been affiliated with banks belonging to the Clearing House Association until 1903-4, when, on account of a new rule of that association requiring a larger reserve of member or affiliated institutions, they withdrew. The new State laws raising the reserve requirements of trust companies did not bring such reserves up to the clearing house standard. But in the spring of 1911 a special committee of the clearing house secured the assent of trust company managers to new rules, whereby the trust companies might clear through members or be admitted to full membership themselves. Seventeen trust companies, with capital and surplus of \$128,415,000 and deposits of \$425,300,000, were admitted to membership.

LOANS, MORTGAGE. See INSURANCE.

LOANS, POLICY. See INSURANCE.

LOCKE, WILLIAM J. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

LODGE, GEORGE CABOT. See LITERATURE, ENGLISH AND AMERICAN, *Poetry*.

LOGIC. See PHILOSOPHY.

LONDON. See ARCHITECTURE.

LONDON, JACK. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

LONG AND SHORT HAUL. See RAILWAYS.

LOOMIS, CHARLES BATTALL. An American humorist, died September 23, 1911. He was born in Brooklyn in 1861 and was educated at the Polytechnic Institute of that city. From 1879 to 1891 he was engaged in business, but in the latter year abandoned this for writing. He contributed to nearly all the best known periodicals and became widely known as a humorist. He was also successful as a public speaker. Among his published writings are *Just Rhymes* (1899); *Yankee Enchantments* (1900); *Cheerful Americans* (1903); *Minerva's Manœuvres* (1905); *A Holiday Touch* (1908), and *Little Maude* (1909).

LOPEZ DOMÍNGUEZ, JOSÉ. See DOMÍNGUEZ, JOSÉ LOPEZ.

LORD, NATHANIEL WRIGHT. An American metallurgist, died May 23, 1911. He was born in Cincinnati in 1854 and graduated from Columbia University in 1876. After serving for some time as chemist and engineer for a gold mining company, he engaged in the practice of chemistry in 1883, and in 1888 he was appointed consulting chemist of the Ohio Geological Survey. He was also chemist in charge of the analysis of fertilizers for the Ohio State Board of Agriculture. He was the author of *Notes on Metallurgical Analysis*, and also wrote *Iron Manufacture of Ohio*, Vol. V., and *Natural and Artificial Cements*, Vol. VI., of the *Ohio Geological Survey*. He also prepared the report on the chemical examination of the waters of the Scioto, Olentangy, and Mahoning rivers for the Ohio State Board of Health (1891). He was director of the chemical laboratory of the United States fuel testing plant at the St. Louis Exposition in 1904.

LORD, WILLIAM PAINE. An American public official, died February 17, 1911. He was born in Dover, Del., in 1838, and graduated from Fairfield College in 1860. He served throughout the Civil War and was mustered out as major. Until 1867 he served as second lieutenant in the Second United States Artillery, but resigned in the following year. He was admitted to the bar and practiced law in Salem, Ore. In 1878 he was a member of the Oregon Senate. For fourteen years he was justice of the Supreme Court of the State. He was elected governor of Oregon in 1895, serving until 1899. From the latter year to 1903 he was American minister to the Argentine Republic.

LORE, CHARLES BROWN. An American jurist, died March 6, 1911. He was born in Odessa, Del., in 1831, and graduated from Dickinson College in 1852. He studied law and was admitted to the bar in 1861. From 1869 to 1874 he was attorney-general of Delaware. In 1883 he was elected to the forty-eighth Congress and was reelected to the forty-ninth in 1885. When Senator Bayard retired to become secretary of state in President Cleveland's cabinet, Mr. Lore was defeated for the senatorial vacancy by George Gray by one vote. In 1893 he was appointed chief justice of the State and was reappointed under the new constitution in 1897. His term expired in 1909. He was for many

years the most prominent layman in the Methodist Episcopal Church in Delaware.

LORENZ, Dr. See *EXPLORATION, Asia.*

LOS ANGELES. See *BUILDING.*

LOS ANGELES, ELECTIONS IN. See *CALIFORNIA.*

LOS ANGELES AQUEDUCT. See *AQUEDUCTS.*

LOS ANGELES PUBLIC LIBRARY. See *LIBRARY PROGRESS.*

LOSSES BY FIRE. See *FIRE PROTECTION.*

LOTSCHBERG TUNNEL. See *SWITZERLAND, Railways.*

LOUDENSLAGER, HENRY CLAY. An American public official, representative in Congress from New Jersey, died August 1, 1911. He was born in Mauricetown, N. J., in 1852, and was educated in the public schools of Paulsboro. From 1872 to 1882 he was engaged in business in Philadelphia. In the latter year he became county clerk of Gloucester county, N. J., serving until 1892. In the following year he was elected to Congress and served in successive Congresses until the time of his death. In 1906, 1908, and 1910 he was secretary of the Republican Congressional campaign committee. In the House of Representatives he was a member of many important committees. He was chairman of the committee on pensions, and was a member of the committee on naval affairs.

LOUISIANA. POPULATION. The Thirteenth Census, taken in 1910, showed a population of 1,656,388 as compared with 1,381,625 in 1900, an increase of 274,763, or 19.9 in the decade. The principal cities, with their populations in 1910 and 1900 are as follows (the figures in parenthesis are for 1900): New Orleans, 339,075 (287,104); Shreveport, 28,015 (16,013); Baton Rouge, 14,897 (11,269); Alexandria, 11,213 (5,648).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 120,546, compared with 115,969 in 1900. The land in farms was 10,439,481 acres, compared with 11,059,127 acres in 1900. The improved land in farms was 5,276,016 acres, compared with 4,666,532 in 1900. The average acres per farm was 86.6, compared with 95.4 in 1900. The total value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$301,220,988 in 1910, compared with \$198,536,906 in 1900. The average value of all property per farm was \$2499, compared with \$1712 in 1900. The average value of land per acre was \$17.99, compared with \$17.74 in 1900. Of the total number of farms in the State those operated by owners and managers numbered 53,930 and those operated by tenants 66,607. Of the farms operated by owners, those free from mortgage numbered 42,011; under mortgage 9834. The native white farmers numbered 63,236; foreign-born white 2431; negro and other non-white 54,879. Of the non-white farmers all but 60 were negroes. There were 58 Indians and 2 Chinese. The value of the various kinds of domestic animals, poultry, and bees was \$44,699,485, compared with \$28,869,506 in 1900. The cattle numbered 804,795, valued at \$11,685,354; horses, 181,286, valued at \$11,789,695; mules, 131,554, valued at \$15,624,962; swine, 1,327,605, valued at \$3,824,046; sheep, 178,287, valued at \$343,

046. Poultry of all kinds numbered 3,542,447, valued at \$1,326,614. The acreage, production, and value of the principal crops will be found in the following table, for 1910 and 1911:

		Acreage	Prod., bu.	Value
Corn	1911	1,800,000	33,300,000	\$23,310,000
	1910	1,782,000	42,055,000	23,130,000
Oats	1911	40,000	840,000	546,000
	1910	36,000	774,000	379,000
Rice	1911	371,200	11,693,000	9,237,000
	1910	371,200	12,769,000	8,555,000
Potatoes ..	1911	22,000	1,518,000	1,518,000
	1910	25,000	1,375,000	1,238,000
Hay	1911	24,000	a 21,000	372,000
	1910	25,000	44,000	506,000
Tobacco ..	1911	500	b 225,000	69,750
	1910	500	275,000	68,750
Cotton	1911	...	c 395,000	.....

a Tons. b Pounds. c Bales.

MINERAL PRODUCTION. The total mineral products of the State in 1910 were valued at \$10,119,993. Of this, petroleum was represented by \$3,574,069; clay products \$546,873; mineral waters, \$163,975; and sand and gravel, \$372,336.

Louisiana is an important producer of petroleum. The production in 1910 was 6,841,395 barrels, nearly double the amount produced in 1909, which was 3,059,531 barrels. Oil is produced in five districts, the Jennings, Welsh, Anse la Butte, Caddo, and Vinton fields. Of these fields, the Jennings and the Caddo are by far the largest producers. The production of petroleum in 1911, according to the preliminary estimates of the United States Geological Survey, exceeded that of 1910 by more than 3,000,000 barrels and approached 10,000,000 barrels. The chief event in this oil field during the year was the development of the Vinton area in the southwestern part of the State. Many new gushers were opened in this field during the year.

MANUFACTURES. The Thirteenth Census included statistics of manufactures in the State for the calendar year 1909. The industries giving employment to the largest number of wage earners in the State are those connected with the lumber and timber products. In these industries 46,072 persons were employed. Second in point of numbers are the industries connected with sugar and molasses and sugar refining, 5093. Other industries in which over 5000 persons are employed are bread, and other bakery products, printing and publishing, foundry and machine shop products, cars and general shop construction and repairs by steam railroad companies, turpentine and rosin. The industry in which the largest capital is invested is sugar and molasses and sugar refining, \$63,775,000. In the industries connected with lumber and timber products, \$62,838,000 was invested; in the industries connected with oil, cottonseed, and cake, \$13,085,000; in the rice industry, \$12,529,000; in the manufacture of bags other than paper bags, \$5,352,000. These are the only industries in which over \$5,000,000 was invested. The total number of persons engaged in the industries was 86,563. Of these 80,787 were male and 5776 female. The great majority of the wage earners of the State worked from 60 to 72 hours a week or from 10 to 12 hours a day. Only 18.1 per cent. were employed in establishments where the prevailing hours were less than 10 a day, and only 3.7 in establishments where the prevailing hours were more than 12 a day. The chief manufacturing city in the State is

New Orleans, where the wage earners employed numbered 17,186, and the value of the products was \$78,794,030. No other city in the State has a considerable number of industrial establishments. The principal results of the census are shown in the following table, with corresponding figures for 1904 and the increase per cent. between 1904 to 1909:

	Number or amount 1909	1904	In- crease
Number of establishments	2,516	2,091	20.3
Persons engaged in manufactures	86,583	63,735	35.8
Proprietors and firm members...	2,295	1,899	20.9
Salaried employees	8,103	5,977	35.6
Wage earners (average number).....	76,185	55,859	36.4
Primary horsepower	346,652	251,963	37.6
Capital	\$221,816,000	\$150,811,000	47.1
Expenses	304,024,000	164,442,000	37.5
Services	42,394,000	31,360,000	35.2
Salaries	9,008,000	6,044,000	49.0
Wages	33,388,000	25,316,000	31.9
Materials	134,865,000	117,035,000	15.2
Miscellaneous	26,765,000	18,047,000	66.8
Value of products..	223,949,000	186,380,000	20.2
Value added by manufacture (value of products less cost of materials)	89,084,000	69,345,000	28.5

EDUCATION. The total enrollment in the elementary schools of the State in 1909, the last year for which statistics are available, was 174,984. Of these, 78,862 were colored. The average attendance in the elementary schools was 128,622 white and 54,637 colored. The total value of the school property in the State in that year was \$7,805,926. The total number of teachers, white and colored, was 6286. The average salary paid to white male teachers was \$75.29, to white female teachers, \$50.80; to colored male teachers, \$34.25, and to colored female teachers, \$28.67. The legislature of 1911 passed ten laws bearing upon public schools. Among these were measures simplifying the machinery of holding special school tax elections, regulating institutes, and summer schools, regulating the adoption of text-books, and a constitutional amendment requiring the *police juries* of all the parishes to appropriate as much as three mills of the various taxes for public education.

POLITICS AND GOVERNMENT

There was little of political importance in the history of the State in 1911. The legislature did not meet, as the sessions are biennial, and the last was held in 1910. There were no elections in the State during the year.

STATE GOVERNMENT, 1911. Governor, J. Y. Sanders; Lieutenant-Governor, P. M. Lambemont; Secretary of State, Edward Everett; Auditor, Paul Capdeville; Treasurer, O. B. Steele; Attorney-General, Walter Guion; Superintendent of Education, T. H. Harris; Commissioner of Agriculture, E. O. Bruner; Commissioner of Insurance, E. J. O'Brien, Jr.; Commissioner of Public Lands, Fred J. Grace—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, J. A. Breau; Associate Justices, A. D. Land, Walter B. Summerville, Frank A. Monroe. O. O. Provosty; Clerk, Paul E. Mortimer—all Democrats.

STATE LEGISLATURE, 1911. Both houses Democratic: Senate, 41; House, 116.

The representatives in 1911 will be found in the article UNITED STATES, *Section Congress*.

LOUNSBURY, T. F. See LITERATURE, ENGLISH AND AMERICAN, *Literary Biography*.

LOW, Sir ROBERT CUNLIFFE. An English general, died August 4, 1911. He was born in 1838. In 1854 he entered the Indian army as cornet in the Ninth Bengal Cavalry. He took part in the Indian Mutiny in operations around Delhi and in the relief of Lucknow. As a result of this service he was appointed brigademajor and was later promoted to be lieutenant-colonel. In 1880 he was made director of transport. In 1895 he led the famous Chitral Relief Expedition, at the end of which he was created a G. C. B. He returned to England the same year and was made a lieutenant-general. In 1898 he returned to India to take up the command of the forces at Bombay. This he held for five years. In 1900 he was given the rank of general. He was retired in 1905 and was given the place of keeper of the crown jewels.

LOWELL, FRANCIS CABOT. An American jurist, died March 6, 1911. He was born in Boston in 1855, graduating from Harvard College in 1876. After a course in the Harvard Law School he was admitted to the bar in 1880. He practiced law in Boston until his appointment as United States district judge for the District of Massachusetts in 1898. He served on this bench until 1905, when he was appointed United States circuit judge of the First Circuit. He was a member of several learned societies and was the author of *Joan of Arc* (1896).

LOYALTY ISLANDS, THE. A dependency of New Caledonia (q. v.).

LÜBECK. See GERMANY.

LUCAS, E. V. See LITERATURE, ENGLISH AND AMERICAN, *Essays and Literary Criticism*.

LUDLOW, JOHN MALCOLM FORBES. An English economist, died October 17, 1911. He was born in *Nimach*, India, in 1821, and was educated at the *University of France*. He became a barrister in 1843 and practiced his profession until 1874. In 1875 he was appointed by the government chief registrar of Friendly Societies and for sixteen years he held this office. When the Labor Copartnership Association was started in 1884 he became one of its first members and in 1897 was made its president. Mr. Ludlow was one of the founders, with F. D. Maurice, of the Workingmen's College. He was identified with almost every organization and movement to assist others to help themselves. He wrote much on industrial and economic questions and contributed a series of articles on the Christian Socialist movement to the *Atlantic Monthly*. One of his last acts was to sign a manifesto urging the wider adoption of the copartnership plan as a remedy for the labor unrest. Among his published writings are *Letters on the Criminal Code* (1847); *Woman's Work in the Church* (1865); *Progress of the Working Class, 1832-67* (with Lloyd Jones, 1867); *The War of American Independence* (1876). He edited *Politics for the People*, *Christian Socialist*, *Journal of Association*, etc., in addition to contributing to many magazines.

LUTHERAN CHURCH. A religious denomination which includes the largest body of Protestants in the world. The four general

bodies of Lutherans embrace two-thirds of the Lutherans in the United States. The chief independent synods are the United Norwegian Synod, the Joint Synod of Ohio, and the German Iowa Synod. According to the United States religious census taken in 1906 and published in 1910, the total number of communicants of the Lutheran faith in the former year in the United States was 2,112,494, with 11,194 church edifices and 7841 ministers. These statistics included twenty-four Lutheran bodies. The statistics of the denomination given below are from the church authorities.

GENERAL COUNCIL. Communicants, 490,489; ministers, 1611; congregations, 2503; church property is valued at \$30,192,881; benevolent offerings for 1911, \$665,556; receipts for local expenses, \$3,708,843. The Bible schools numbered 2184, with an enrollment of 299,855. The next biennial convention will be held in Toledo, O., September 9, 1913.

GENERAL SYNOD. Communicants, 308,564; congregations, 1791; ministers, 1347; church property, valued at \$20,488,390; benevolent offerings, \$578,850; receipts for local expenses, \$2,526,515; Sunday schools, 1712, with an enrollment of 289,698. The next convention will be held at Atchison, Kan., May 14, 1913.

SYNODICAL CONFERENCE. Communicants, 793,500; ministers, 2771; congregations, 3481; church property valued at \$14,884,000. The amount raised for local expenses was \$3,628,631. The Sunday schools numbered 839, with an enrollment of 153,516. This branch also maintains parochial schools, with an enrollment of 146,767. The next convention will be held in Saginaw, Mich., in August, 1912.

UNITED SYNOD OF THE SOUTH. Communicants, 48,352; ministers, 243; congregations, 462; church property valued at \$2,600,896; benevolent offerings, \$68,367; receipts for local expenses, \$207,861; Sunday schools, 383, with an enrollment of 36,740.

INDEPENDENT SYNODS. Communicants, 640,477; ministers, 2699; congregations, 5811; church property valued at \$16,254,222; benevolent offerings, 1911, \$781,521; local expenses, \$2,386,356; Sunday schools, 2411, with an enrollment of 170,688.

The grand total is 64 synods, 8671 ministers, 14,048 congregations, 2,281,382 communicants, 6526 parochial schools with 267,642 pupils, 7529 Sunday schools, with an enrollment of 952,507. The church property is valued at \$83,826,388. The receipts for local expenses were \$12,458,206, and for benevolence, \$2,832,793.

The most significant events in the history of the church in 1911 had to do with the making clear the strong confessional position of the Lutheran Church in the United States. A remarkable book on the confessional principle was published during the year, by Dr. Schmauk, president of the General Council. The General Synod made a declaration, which is intended to define the position of that body on the confessions of the Lutheran Church. The General Council and the Augustana Synod had representatives at the general or world conference of Lutherans in Upsala, Sweden. An arrangement was made during the year between the General Synod and the General Council for an agreement for the arbitration of differences and the division of territory in home missions. The General

Council inaugurated a movement to raise a jubilee fund of \$2,000,000 by 1917, to be a memorial for the quartocentennial of the Reformation and to be devoted to missions and ministerial relief. The 200th anniversary of the birth of Muhlenberg, the founder and patriarch of the American Lutheran Church, and the 100th anniversary of the birth of Rev. C. F. W. Walter, the founder of the large Missouri Synod, were both widely celebrated. A marked advance in theological education was made during the year. The courses at the Theological Seminary were thoroughly revised and three new professors were elected. The Chicago Theological Seminary completed and consecrated its fine new plant. The United Synod of the South dedicated its new seminary at Columbia, S. C., and a new seminary was opened at Waterloo, Ont., while a second Canadian seminary is planned for the Canadian Northwest. Augustana Theological Seminary dedicated its fine Denkman Library and reports several large bequests for seminary and library endowment.

LUXEMBURG. An independent neutral grand duchy in central Europe. Area, 998 sq. miles; population, December 1, 1910, 259,891, nearly all Roman Catholics. Capital, Luxembourg (20,848 inhabitants). Revenue (1911), estimated at 18,497,700 francs (1910, 18,299,174) including extraordinary: Expenditure, including extraordinary, 19,914,566 francs (1910, 18,656,619); annuities, 493,150. Debt, 12,000,000 francs. Reigning grand duke at the end of 1911, Wilhelm, born April 22, 1852; succeeded November 17, 1905; married June 21, 1893, Princess Maria Anna of Braganza (regent since November 18, 1908). Heiress-apparent (act of July 6, 1907), Princess Marie, born June 14, 1894.

LYALL, Sir ALFRED COMYN. An English public official and author, died April 10, 1911. He was born in 1835 and was educated at Eton. He entered the Indian civil service in 1856. During the great mutiny he saw service for which he received official commendation. He received rapid promotion and after nine years' service he was appointed commissioner of Nagpur. In 1867 he was appointed to the commissionership of Western Berar. He was selected in 1873 as home secretary to the government of India. He was appointed in 1878 foreign secretary to the government of India and held this very important office throughout the Afghan War. During his service in this capacity the attitude of Russia formed a source of constant anxiety to the government of India and to the British nation. Before laying down the office of foreign secretary in 1881 he placed on record a note dealing in an impartial but comprehensive spirit with this question and urging the expediency of endeavoring to come to an agreement with Russia for a joint diplomatic recognition of the Afghan frontier towards Central Asia. From this note dates the adoption by the British government of the policy of openly assuming the protectorate of Afghanistan and of delimiting its northwestern frontiers in concert with Russia. This culminated in the Anglo-Russian convention of 1907. Lyall was rewarded for his services by a C. B. in 1879 and a K. C. B. in 1881. In the latter year he was appointed lieutenant-governor of the North-

West Provinces and Oudh. During his administration he carried out many notable reforms. Through his influence a separate legislative council was created for what are now the United Provinces and a new university was founded at Allahabad. In 1887 he retired from the civil service. On his return to England in the following year he was appointed a member of the Indian Council and on the expiration of the ten years which formed the term of this office, he was paid the rare compliment of reappointment for the statutory limit of five years.

Although Sir Alfred Lyall achieved notable reputation as an administrator, it was rather as a thinker and as a man of unique social and personal charm that he was best known to the world at large. A number of magazine articles and reviews which he published between 1870 and 1881 were collected in 1882 under the title of *Asiatic Studies*. This placed him in the first rank of philosophical essayists. It was in recognition of his authorship no less than of his distinguished official career that in 1902, after retirement from the Indian Council, he was appointed to the Privy Council. His studies in Indian history resulted in the production of *The Life of Warren Hastings* in 1889. *The Rise and Expansion of British Dominion in India* was a notable contribution to the literature bearing on this subject. It is, in reality, a philosophical history of the Indian empire based on inductive principles. Also of great importance was the *Life of Lord Dufferin*, published in 1905. He also contributed to the "English Men of Letters Series" in 1902 a brief but valuable estimate of Tennyson's place in English poetry. He received the degree of D. C. L. from Oxford and LL. D. from Cambridge University.

MACAO. A city on the island of Macao (Chinese); a dependency, with the small adjacent islands Colôane and Taipa, of Portugal. Area, 4 sq. miles; population (1910), 74,866 (about 13,000 in Colôane and Taipa). Governor (1911), A. de Mello Machado (ad. int.).

MCCARTHY, JUSTIN. See LITERATURE, ENGLISH AND AMERICAN, *General Biography*.

MCGILL, UNIVERSITY. An institution of higher learning at Montreal, Canada, founded in 1821. In 1910-11 the students in all departments numbered 2426, of whom 867 were in the faculty of arts, 60 in law, 610 in applied science, 310 in medicine, 456 in agricultural education and household science, 50 in graduate school, and 73 in music. The faculty numbered 254. New appointments to the university staff were Prof. A. N. Alcock to the chair of physiology, and Prof. Herbert J. A. Rose, the first Rhodes scholar nominated by the university, to the associate professorship of classics. During the year the university received a donation of a tract of land valued at about \$1,100,000 from Sir William C. Macdonald. From Lord Strathcona was received a gift of \$100,000 for the equipment of a new medical building, which was built at a cost of \$600,000 and was formally opened on June 5, 1911. A gift of \$25,000 was received from James Douglas, of New York, for the purpose of research work in pathology. A commercial course extending over two years has been established in connection with the faculty of arts. The president of the university is W. Peterson.

MACHINERY, ELECTRICAL. See DYNAMO-ELECTRIC MACHINERY.

MCBRIDE, GEORGE WICKLIFFE. An American public official, former senator from Oregon, died June 19, 1911. He was born in Yamhill county, Oregon, in 1854 and for two years studied at Christian College in that State. He was admitted to the bar, but never practiced actively. For ten years he was engaged in mercantile business. He was a member of the Oregon House of Representatives in 1882 and was secretary of state from 1887 to 1895. In the latter year he was elected United States senator, serving until 1901. From 1901 to 1905 he was United States commissioner of the St. Louis Exposition.

MCCOOK, HENRY CHRISTOPHER. An American clergyman, died October 31, 1911. He was born in New Lisbon, Ohio, in 1837, and was one of the famous family which included five brothers who fought with distinction in the Civil War (see MCCOOK, JOHN JAMES). He graduated from Washington and Jefferson College in 1859 and studied at the Western Theological Seminary. In 1861 he was ordained to the Presbyterian ministry, and engaged in home missionary work in Illinois and Missouri. He assisted in organizing the Forty-first Illinois Volunteers, of which he was first lieutenant and chaplain in 1861-2. In the latter year he became a pastor in Clinton, Ill., remaining until 1864, when he engaged in missionary work in St. Louis. In 1870 he was chosen pastor of the Tabernacle Presbyterian Church, Philadelphia, and continued in this pastorate until 1903, when he was made pastor emeritus. He served as chaplain of the Second Pennsylvania Volunteers in the Spanish-American War and was founder of the National Relief Commission in that war. He was prominent as an entomologist and was president of the American Entomological Society. He was the author of *Agricultural Ants of Texas*; *American Spiders and their Spinning Work*; *Tenants of an Old Farm*; and *Old Farm Fairies*, all scientific works. He also wrote *Women Friends of Jesus*; *The Gospel in Nature*; *Teachers' Commentary on the Life of Christ*; a romance entitled *The Latiners*; and *The Senator—a Threnody*, in verse and prose, written as a memorial of the late Senator Hanna. He wrote also *Nature's Craftsmen* (1907) and *Ant Communities and How They Are Governed* (1909).

MCCOOK, JOHN JAMES. An American lawyer and soldier, died September 17, 1911. He was the youngest of the so-called "Fighting McCooks." His father, eight older brothers, and five cousins took part in the Civil War. At one time or another through the war they were all officers. He left the army with the title of colonel. Colonel McCook was born in 1855 in Carrolton, Ohio. He enlisted in the Fifty-second Ohio Infantry at the outbreak of the war. In 1862 he was commissioned as lieutenant of the Sixth Ohio Cavalry and in 1863-4 served as captain and aide. He served in the campaigns of Perryville, Stone River, Chattanooga, and Chickamauga with the western armies and with General Grant in the Army of the Potomac. He was severely wounded in May, 1864, at the battle of Shady Grove, but in spite of this, served throughout the war. At its close he entered Kenyon College, graduating in 1866. He then went to the Harvard Law School and

finished his course three years later. In 1870 he entered the law office of Alexander & Green, New York City. He rose to become senior member. His law practice dealt chiefly with corporations. He was counsel for the Equitable Life Assurance Society and was receiver for the Atchison Railroad. He was invited by President McKinley to enter his cabinet either as secretary of the interior or as attorney-general, but he declined both offers. McCook took a prominent part in the heresy trial of the Rev. Charles F. Briggs as prosecutor on the part of the presbytery. He was for many years a director of Princeton Theological Seminary and took a great interest in the development of that institution. He was made an honorary master of arts by Princeton in 1873. He also received the degree of LL. D. from the University of Kansas and from Lafayette College. He served in several administrations as the confidential diplomatic agent of the United States and was entrusted with many missions of great delicacy. At the accession of Nicholas II. as Czar of Russia, Colonel McCook and his brother, Alexander McDowell McCook, were the military representatives of the United States by an act of Congress. In 1906 the emperor of Japan conferred upon Colonel McCook the Order of the Rising Sun.

MCCULLOUGH, MYRTLE (REED). An American writer, died August 17, 1911. She was born in Chicago in 1874 and was educated in the schools of that city. She engaged in journalism and in literary work. In 1906 she married James Sydney McCullough. She was the author under the name "Myrtle Reed" of: *Love Letters of a Musician* (1899); *Later Love Letters of a Musician* (1900); *The Spinster Book* (1901); *Lavender and Old Lace* (1902); *At the Sign of the Jack O' Lantern* (1905); *The Spinner in the Sun* (1906); *Love Affairs of Literary Men* (1907); *Flower of the Dusk* (1908); *Old Rose and Silver* (1909), and *The Weaver of Dreams* (1911).

MCCONNELL, ALLEN. An American Roman Catholic clergyman and educator, died March 13, 1911. He was born in Charlotte-town, Prince Edward Island, in 1825 and at an early age took up the teachings of the Jesuits. He removed to the United States and was appointed to a professorship at Saint John's College, Fordham. From there he went to St. Francis Xavier College, New York City. After leaving this institution he made a tour of the United States as a Jesuit missionary and became widely known for his work. He spent two years on the tour and visited almost every city in the country.

MCGARVEY, JOHN WILLIAM. An American theologian and educator, died October 6, 1911. He was born at Hopkinsville, Ky., in 1829 and graduated from Bethany College in 1850. He was ordained to the ministry of the Christian Church in 1852 and in the following year was made pastor of a church in Fayette, Mo. This was followed by pastorates in Dover, Mo., and Lexington, Ky. In 1865 he was chosen professor of sacred history at the College of the Bible of Transylvania University. In 1895 he became president of the college. He retained this position until the time of his death. He contributed to newspapers as correspondent and editor for fifty years. He was the author of *Commentaries on the Acts of the Apostles*

(1863-1893); *Lands of the Bible* (1881); *Test and Canon of the New Testament* (1886); *Credibility and Inspiration of the New Testament* (1891); and *The Authorship of Deuteronomy* (1902).

McKEEN, JAMES. An American lawyer and publicist, died in February, 1911. He was born in Brunswick, Me., in 1844 and graduated from Bowdoin College in 1864. He was admitted to the bar in 1867 and from 1870 until the time of his death practiced in New York City, becoming one of the leaders of the New York bar. He served as associate counsel in the famous New York insurance investigations of 1905-6, in which Charles E. Hughes took the leading part. He served in important public capacities, and in addition to various articles, wrote *Evolution of Penal Methods and Institutions and Factors in American Civilization*.

McLANE, JOHN. An American public official, formerly governor of New Hampshire, died April 13, 1911. He was born at Lennox-toun, Scotland, in 1852. His education was obtained in the public schools of Manchester, N. H. He learned the trade of cabinet maker and from 1876 to the time of his death was manufacturer of post office furniture and equipments. He was a member of the New Hampshire House of Representatives in 1885, of the Senate in 1891 and 1893. In both years he was president of that body. In 1905 he was elected governor of the State.

McLEAN, GEORGE PAYNE. United States senator (Republican) from Connecticut. He was born in Simsbury in 1857 and was educated in the common schools and at the Hartford High School. In 1881 he was admitted to the bar and practiced law in Hartford. He was a member of the State House of Representatives in 1883-4. In 1885 he was a member of the commission to revise the Connecticut statutes. He served in the State Senate in 1886 and from 1892 to 1896 was United States district attorney for Connecticut. He was nominated for the Senate in the Republican caucus by a vote of 116 to 64 for opposing candidates, and was elected by the General Assembly by a vote of 158 to 96 for his opponents. (See CONNECTICUT). His term of service will expire in 1917.

McNAMARA, J. B. and J. J. See CALIFORNIA; INDIANA; and TRADE UNIONS.

MacWHIRTER, JOHN. An English artist, died February 1, 1911. He was born near Edinburgh in 1839. When he was fourteen years of age he exhibited his first work at the Royal Scottish Academy and about the same time entered the art schools. From 1856 onward he exhibited many pictures at the annual exhibitions. At the age of twenty-eight he was elected an associate of the Royal Scottish Academy. He was elected an associate of the Royal Academy in 1879 and in 1894 was made a full academician. The greater number of his pictures and drawings were views of the Scotch Highlands. He painted, however, Italian lake scenes and scenes of Switzerland. The best known of his paintings are "Lady of the Woods," "Lord of the Glen," "The Three Graces," "Track of the Hurricane," and "Crabbed Age and Youth."

MACKAY-SMITH, ALEXANDER. An American bishop of the Protestant Episcopal Church, died November 16, 1911. He was born in New Haven in 1850 and graduated from Trinity

College in 1872. After a course at the General Theological Seminary he pursued his theological studies in England and Germany. He was ordained to the priesthood in 1877. After serving as an assistant at All Saints' Church in Worcester, Mass., and at Christ Church in South Boston, he became rector of St. Thomas' Church in New York City in 1880. In 1886 he was made the first archdeacon or missionary superintendent of the New York diocese. In the same year he refused election as bishop-coadjutor of Kansas. In 1893 he became rector of St. John's Church in Washington. He was consecrated bishop-coadjutor of Pennsylvania in 1902. In 1907 he was forced to go abroad on account of his health and upon his return he had to administer the affairs of the diocese almost alone because of the feebleness of Bishop Whitaker. On the death of the latter in 1910 he became bishop of Pennsylvania. He announced his intention to retire from the bishopric on account of ill health in January, 1912. He was a frequent contributor to current literary magazines and other periodicals.

MACOMB, DAVID BETTON. A rear-Admiral, retired, of the United States navy, died January 27, 1911. He was born in Florida in 1827 and in 1849 was appointed third assistant engineer in the United States navy. After various promotions he became chief engineer in 1860. He served throughout the Civil War on special duty and on the *Canonicus*. In 1871 he acted as fleet engineer for the North Atlantic fleet. In 1882-3 he was president of the Engineering Board of the Navy Yard, Portsmouth, N. H. He was retired in 1889 and in 1906 was advanced to the rank of rear-admiral, retired, for services during the Civil War.

MADAGASCAR. One of the largest of the world's islands; a French colony off the southeastern coast of Africa. Capital Antananarivo (Tananarive).

AREA, POPULATION, ETC. By the act of June 27, 1908, the *cercle* (military territory) of Mahafaly was merged with the province of Tulear. Madagascar is now divided into 19 provinces, 3 *cercles*, and one autonomous district, with an aggregate area of 585,300 sq. kilometers and a population (1910) of 2,890,626. The Hova is the dominant tribe. Antananarivo has 72,000 inhabitants; Fianarantsoa, 27,000; Tamatave, the chief eastern port, 7026; Majunga, the port of the northwest coast, 4600.

PRODUCTION, COMMERCE, ETC. Agriculture is a leading industry, and rice is the staple native crop. Under cultivation by Europeans are coffee, tobacco, sugar-cane, hemp, cotton, vanilla, tea, etc. Forests of valuable timber cover large areas. Cattle are raised in considerable numbers, and sericulture is carried on. Native manufactures include silk and cotton goods, and raffia fabrics. Gold is mined.

The trade by great classes for three years is given below in thousands of francs:

	1907	1908	1909
Foodstuffs	6,691	7,234	6,706
Industrial material	2,273	3,154	2,908
Manufactures	16,359	19,576	24,526
Total imports	25,323	29,963	34,140
Foodstuffs	3,564	4,014	3,722
Industrial materials	23,125	18,345	28,024
Manufactures	581	732	1,632
Total exports	27,270	23,091	33,378

Export of gold dust: 1907, 7,982,068 francs; 1908, 9,446,715; 1909, 10,937,225. Hides: 1907, 5,709,971 francs; 1908, 3,203,007; 1909, 5,604,411. Rubber: 1907, 5,242,637 francs; 1908, 1,260,726; 1909, 4,613,920. France furnished imports valued (1909) at 29,752,626 francs and received 22,412,316 exports. Vessels entered (1909), 9345, of 1,393,000 tons. A railway runs from Brickaville to the capital (170 miles). Cost of construction, including railway station at Antananarivo, sixty million francs. There is a line (7 miles) from Tamatave to Ivondra. Regular automobile service now connects Antananarivo with Antsirabe, Miarinarivo, and Maevatanana. Telegraph lines, 5351 kilometers, wires, 9913; post offices 145.

FINANCE AND GOVERNMENT. The budget estimate for 1909 balanced at 30,780,000 francs; the debt stood, January 1, 1910, at 99,283,000 francs. The colony is administered by a governor-general (Victor Augagneurj in 1911). Diego-Suarez and the islands of Nosy-Bé and Ste. Marie are dependencies of Madagascar.

MADERO, FRANCISCO INDALICIO. A Mexican political leader, elected on October 1, 1911, president of the republic of Mexico. He was born on October 4, 1873, on the estate of his grandfather, Don Evaristo Madero, in Coahuila. Don Evaristo Madero left at his death a fortune valued at over \$25,000,000, which was divided among his descendants. During the first ten years of his early manhood, Francisco Madero devoted himself to the management and improvement of the family estates, which, under his control, came to be reckoned among the richest and most productive agricultural tracts of northern Mexico. He introduced modern agricultural methods and employed scientific irrigation, so that he was able to introduce and profitably to grow not only the Mexican products, but in addition olives and grapes. Madero also took an interest in the development of the mineral resources of the family estates and developed several rich gold and copper mines, for which he constructed modern stamp mills and smelters. His administration of properties was distinguished by humane treatment of the natives employed on the estates. He was an avowed foe of the system of peonage and contract labor in which many natives of Mexico were held in quasi bondage. In 1909 Madero removed to the City of Mexico, and began almost at once to take a lively interest in public affairs and in the political condition of his country. He declared in an interview that his criminal indifference was given a rude shock by the election massacres in Monterey, on April 2, 1903. He took up the cause of the independent voters opposed to the nomination and reelection of Diaz, first in his own state of Coahuila, and afterwards throughout Mexico. A political organization was founded under his direction, known as the Club Democratico Benito Juárez, with branch organizations in almost every state of the country. By the help of his clubs he introduced the American procedure of State conventions into Mexican politics. This culminated in the national convention of the new Democratic party in the City of Mexico. Madero had become the acknowledged leader of the independent voters of Mexico by 1905, and in that year he came out openly against the Diaz government in the campaign for the elec-

tion of a governor of Coahuila. During the progress of the campaign a warrant was issued for his arrest, but before it could be executed Diaz sent a private order from the capital staying its execution. The independent voters were defeated, but Madero immediately began work in preparation for the next presidential campaign in 1910. He was especially opposed to the reelection of Diaz as president and Ramón Corral as vice-president. In order to prepare for this campaign he wrote his famous book, *The Presidential Succession of 1910*. This at once made a tremendous sensation throughout the country. It had scarcely been issued when its sale and distribution were prohibited by the government and all copies upon which hands could be laid were destroyed. In this book Madero fearlessly attacked the existing régime. The volume was marked by a spirit of fairness and justice which increased its influence. Madero's reputation had now increased to such an extent that he was reckoned the only candidate for the presidency bold enough to run against Diaz, and he was accordingly nominated by the independent voters. For a short time this opposition was tolerated by Diaz, but no sooner had Madero begun to travel about the country organizing anti-government clubs and making open speeches against Diaz's reelection than measures were taken to suppress him. On June 27, 1910, he was arrested at Monterey. As he was being taken to the penitentiary his wife attempted to accompany him, but she was beaten back by the soldiers. The warrant upon which Madero was arrested contained no formal charge nor did it bear the signature or the seal of the judge who committed him. This was contrary to the laws of Mexico. A few days later when he was formally arraigned a mass of more or less contradictory charges were preferred against him. None of these was supported by evidence, but he was recommitted to prison on the charge of having libeled one Juan Orci, a political supporter of Corral.

Madero was kept in prison only long enough to destroy the last remote chances he might have had in his candidacy for the presidency. When Diaz was reelected the friends of Madero were allowed to bail him out in the sum of \$10,000. As soon as he was released from prison he went to San Luis Potosí, and there on October 15, 1910, published his famous "cry to arms," formulated on a definite political platform known as the "plan of San Luis Potosí." The main principles of this platform were expressed in the two catch words, "effective suffrage" and "no reelection." It contained also demands for reforms in the distribution of the land; free restitution of the land wrested from Indian tribes; liberation of all political prisoners; the abolition of the military practice of making soldiers out of condemned criminals, and positive guarantees of the constitutional rights of free speech and free press. Madero had fixed the night of November 20, 1910, as the date for a general rising. His plan was prematurely discovered, however, and he was obliged to flee from the country before that date. His principal fellow-conspirator, Alfredo Domínguez, together with several others, was arrested in the City of Mexico. On account of this premature discovery Madero's agents in Puebla thought it best to make their rising earlier than the date originally set.

The revolution broke out on November 20. Madero purchased large quantities of arms and ammunition in the United States, and then went to San Antonio, Tex., and to El Paso, where he established revolutionary juntas. After a warrant for arrest for violation of the neutrality laws of the United States had been issued against him, he, with a handful of followers, crossed into Chihuahua and entered actively into the campaign in that state, which presently extended to the neighboring states of Sonora and Sinaloa. The history of the campaign with its successful issue will be found narrated in the historical section in the article MEXICO.

MADISON, EDMOND II. An American public official, representative in Congress from Kansas, died September 18, 1911. He was born in Plymouth, Ill., in 1865 and was educated in the common schools of that State. At the age of eighteen he began teaching school. In 1885 he removed to Wichita, Kan., and began the study of law. He was admitted to the bar in 1888. In the same year he was elected county attorney of Ford county and served two terms in this office. He was appointed judge of the 31st judicial district of Kansas, in 1900, a position which he held until 1906, when he resigned to become a candidate for Congress. He was elected to the Sixtieth Congress and reelected to the Sixty-first. Mr. Madison was one of the most aggressive of the progressive Republicans or insurgents. He served on the Ballinger-Pinchot investigating committee and signed an independent report adverse to Secretary Ballinger. He took an active part in the fight against the power of former Speaker Cannon and the rules under which the latter maintained his supremacy in controlling the business of the House.

MADRIZ, JOSÉ. Former president of Nicaragua, died May 15, 1911. He was educated for the law. He achieved a reputation as a brilliant lawyer and became judge of the Central American Court of Justice. When President Zelaya was forced to give up the presidency of Nicaragua he named Madriz as his successor and the latter was elected to office December 20, 1909. He sought to have the United States recognize him as president, but Secretary Knox informed him that diplomatic relations between the two countries could not be resumed until Madriz was able to prove his government satisfactory. He was overthrown by the revolutionists under General J. J. Estrada and was forced to resign on August 20, 1910. He fled to the Island of Amapala, belonging to Honduras, but was requested to leave and went to the City of Mexico, where he remained a refugee until his death.

MAETERLINCK, MAURICE. See LITERATURE, ENGLISH AND AMERICAN, *Drama*.

MAGAZINE TRUST. See TRUSTS.

MAHLER, GUSTAV. A Bohemian musical conductor and composer, died May 19, 1911. He was born at Kalischt, Bohemia, in 1860. He studied at the University of Vienna and received the degree of doctor of philosophy. His tastes, however, were for music and he began the study of composition under Brückner. He also studied alone, and began his active musical career as conductor at the opera at Cassel. He later went into the Deutscher Theater in Prague and was successively conductor at Leipzig, Budapest, and Hamburg. He finally

became conductor at the Imperial Opera House at Vienna and under his direction the performances reached a higher point of excellence than they had maintained in years. From Vienna Mahler was called to conduct performances at the Metropolitan Opera House in New York City. This was in the last year in which Heinrich Conried acted as director of this house. He remained during the first year of the new administration under Gatti-Casazza and then became conductor of the reorganized Philharmonic Orchestra. His production of German operas at the Metropolitan Opera House was especially notable, but he also produced such well-known operas as *Fidelio*, *Don Giovanni*, and others. During the second year he made a famous production of *Le Nozze di Figaro*, in which the cast included Mmes. Sembrich, Eames, and Farrar, and MM. Scotti and Didur. Of more than ordinary interest was the production of Tchaikowsky's *Pique Dame*, which had originally been given under Mahler's direction at the Imperial Opera House in Vienna twelve years before. This production ended his connection with the Metropolitan Opera House. He conducted the Philharmonic Orchestra for two years, but for a portion of time during the second season he was too ill to preside at the concerts. As a composer he was the author of eight symphonies which were produced at many European musical festivals. He also wrote many songs and composed the music to a play called *Das klagende Lied*. His eighth symphony was produced in Munich with great ceremony in October, 1910.

MAINE. POPULATION. The Thirteenth Census, taken in 1910, showed a population in the State in that year of 742,371, as compared with 694,466 in 1900, an increase of 47,905, or 6.9 per cent. in the decade. The principal cities with their population in 1910 and 1900 are as follows: Portland, 58,571 (50,145); Lewiston, 26,247 (23,761); Bangor, 24,803 (21,850); Auburn, 15,064 (12,951); Augusta, 13,211 (11,683); Waterville, 11,458 (9,477).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. The information gathered is of date April 15, 1910. The total number of farms in the State on that date was 60,016, as compared with 59,299 in 1900. The land in the State devoted to farming amounted to 6,296,859 acres, while the improved land in farms amounted to 2,360,657 acres. The average number of acres per farm was 104.9. The total value of farm property was \$199,271,998, as compared with a value of \$122,410,904 in 1900, an increase of 62.8. The average value of land rose from about \$8 an acre in 1900 to nearly \$14 an acre in 1910. Of the farms in the State, 57,453 were operated by owners and managers, and 2,563 operated by tenants. Of the 56,454 owned farms, 41,309 were free from mortgage and 14,948 were mortgaged. The value of domestic animals, poultry and bees on April 15, 1910, was \$25,161,839, as compared with a value in 1900 of \$17,106,034, an increase of 47.1 per cent. The cattle on the farms of the State numbered 256,523, with a value of \$7,784,384; horses and colts, 107,574, with a value of \$14,364,756; mules, 358, valued at \$72,446; swine, 87,156, valued at \$948,094; sheep and lambs, 206,430, valued at \$813,976. The number of fowls of all varieties was 1,735,962, valued at \$1,131,921. Of the farmers of the State, 55,041 were native white, 1973 were foreign-born

white, and 29 were negro and other non-white.

The following table gives the acreage, production, and value of the various crops in 1910 and 1911:

	Acreage	Prod., bu.	Value
Corn .....1911	18,000	792,000	\$713,000
1910	17,000	782,000	555,000
Wheat .....1911	3,000	63,000	69,000
1910	3,000	89,000	91,000
Oats .....1911	135,000	5,198,000	2,807,000
1910	130,000	5,512,000	2,646,000
Potatoes ..1911	118,000	21,240,000	16,355,000
1910	133,000	29,260,000	12,289,000
Hay .....1911	1,400,000	a 1,640,000	22,176,000
1910	1,400,000	1,750,000	22,400,000

a Tons.

MINERAL PRODUCTION. The mineral products of the State in 1910 were valued at \$4,713,123. Of this, stone, of which Maine was one of the largest producers, was valued at \$2,315,730; lime, \$893,599; clay products, \$599,881; mineral waters, \$404,539; slate, \$249,005.

EDUCATION. The total number of children between the ages of 5 and 21 years in the State in 1910 was 213,123. The number enrolled in all the schools was 132,592. Of these, 52,114 were in rural schools, 44,763 in village schools, and 35,715 in city schools. The total expenditures for the year amounted to \$1,875,605. The average salary of male teachers per month was \$91.06. The average salary of female teachers per week was \$12.03.

FINANCE. The report of the treasurer for the fiscal year ending December 31, 1910, showed receipts in that year of \$4,030,356, and expenditures of \$3,970,457, leaving a cash balance at the end of the year of \$135,722. The total valuation of property in 1910 was \$428,252,465, and the total assessed tax was \$2,143,156. The rate of taxation was 5 mills.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions under the control of the State include the Eastern Maine General Hospital at Bangor, the Maine Institution for the Blind at Portland, Maine General Hospital, at Portland, School for the Deaf, School for the Feeble-minded, Home for Friendless Boys, Northern Maine General Hospital, at Eagle Lake, Central Maine General Hospital, and the State prison at Thomaston. The total expenditures for the maintenance of these and other institutions not directly under State control was \$199,353.

POLITICS AND GOVERNMENT

The legislature was in session in 1911 and passed a number of important measures, which are noted in the paragraph *Legislation* below. On January 5 Frederick W. Plaisted was inaugurated governor of the State, the first Democratic governor in thirty years. With Governor Plaisted was elected in 1910 a Democratic legislature, pledged to resubmit to the people the prohibitory amendment to the State constitution. The campaign on this question made the year a memorable one in the political history of the State. The legislature promptly passed a measure which, on March 2, was signed by Governor Plaisted submitting the question of the repeal of the prohibition amendment to the people. The most bitter and aggressive campaign in the history of the State followed. While sentiment for the repeal of the amendment was strong in

the cities, where it had been found well-nigh impossible to enforce the law, the voters of the country districts were in favor of its retention, and speakers from outside the State were employed to make a canvass. By September 11, the date on which the public election was to be held, public sentiment was thoroughly aroused on both sides of the question. The vote cast was in some respects the most remarkable ever cast in an election of the State. The first reports indicated that the law had been repealed by a popular majority of about 900 votes. Later returns indicated, however, that this majority for repeal had been changed to a small majority for the retention of the amendment. Still later reports left the question in dispute. An official recount was necessary and this appeared to indicate that the amendment had been repealed by 26 votes. It was, however, a matter of testimony and record on the part of the town clerks of Limestone, Topsfield, and Matinicus, and one or two other small towns that clerical errors had been made by the town clerks in the transmission of their reports by which the figures had been exactly reversed; that is, the yes votes had been returned as no, and the no votes as yes. While the face of the returns showed an apparent majority for repeal, it was a matter of record in the towns that the actual majority in the State with these errors corrected was over 700 "no." Several hearings were given by the governor and council at which the town clerks appeared, and after reference to legal authority the errors were corrected and the vote finally declared to be 60,095 for repeal, and 60,853 for retention of the amendment. The vote for the repeal of the law was strongest in the cities, twenty cities of the State returning a total vote of nearly 2 to 1 for the repeal of prohibition. With the single exception of the city of Calais, each city returned a majority for repeal. In Bangor, Lewiston, Biddeford, Eastport, Ellsworth, and Oldtown the majority for repeal was over 3 to 1, and in Portland, Augusta, Waterville, Bath, and other cities it was very large. Governor Plaisted in his report on the final settlement of the vote declared that the resolution which submitted the repeal amendment to the people required the reassembling of the legislature in special session to receive the report of the governor and council. He declared further that when this legislature met it should revise the law regarding the conduct of elections so that the evils revealed by this election might not recur. He declared also that an amendment to the constitution should be submitted to the popular vote which "will permit the enactment of laws concerning the liquor traffic which are capable of honest enforcement because sustained by the sentiment of the several communities to which they will be applied." A special session of the legislature was thereupon called by Governor Plaisted to convene March 20, 1912.

On the same special election September 11, the people voted also, in referendum on a direct primary law, known as the Davies Direct Primary elections. This primary election law, which was invoked by the initiative, with over 12,000 signatures and submitted to popular vote under the initiative and referendum, was confirmed by popular vote on September 11, by a vote of 65,810 for, and 21,744 against. In October Governor Plaisted proclaimed it a law, thus superseding the direct primary law enacted in the Seventy-fifth legislature in 1911. The differ-

ence between these two laws was very marked. The legislative law applied only to candidates for offices of governor, representatives in Congress, and United States senators. The so-called Davies direct primary applies not only to these above mentioned offices, but also to all other candidates for State and county office. It also includes a stringent corrupt practices provision, determining not only the amount of money which shall be expended by candidates for public office, but also the methods by which it shall be employed and penalties for infraction of the provision of this law. At the same special election of September 11 the people voted on the question of whether or not Augusta, when it had reached a population of 40,000 or more should become the permanent capital of Maine, 59,678 yes; 49,294 no. A fourth question settled by popular vote in referendum on this date was in favor of granting an increased debt limit to cities of 40,000 or more population. This was especially intended to meet the requirements of the city of Portland, the only city in Maine having a population of 40,000. The vote stood 39,242 "yes"; 38,712 "no."

The expiration of the term of Senator Hale made it necessary for the legislature to choose his successor, and on January 17, Charles F. Johnson of Waterville was elected, receiving 67 votes on the first ballot. Twenty-one votes were cast for Obadiah Gardner and 17 for William Pennell. This election gave to Maine the first Democratic senator in many years. The vacancy caused by the death of Senator Frye (q. v.), gave opportunity for the State to be represented by two Democratic senators. On September 23 Obadiah Gardner was appointed to succeed Senator Frye by Governor Plaisted.

On March 30 the legislature ratified the income tax amendment, reversing action previously taken.

LEGISLATION. The important measures passed at the legislative session of 1911 included the following: A statute simplifying practice in equity; a measure establishing better protection of forests from fires; a corrupt practices act; the exemption of real estate mortgages from taxation, and the establishment of direct primaries.

STATE OFFICERS: Governor, Frederick W. Plaisted; Secretary of State, A. I. Brown; Treasurer, P. P. Gilmore; Adjutant-General, Elliot C. Dill; Auditor, Lamont A. Stevens; Attorney-General, Warren C. Philbrook; Superintendent of Education, Payson Smith; Insurance Commissioner, Beecher Putnam; Commissioner of Agriculture, A. W. Gilman; Commissioner of Public Lands, E. E. Ring—all Republicans except Plaisted and Stevens, Democrats.

JUDICIARY. Supreme Judicial Court: Chief Justice, L. A. Emery; Associate Justices, L. C. Cornish, Albert M. Spear, W. P. Whitehouse, G. E. Bird, Albert R. Savage, A. W. King, and Henry C. Peabody—all Republicans except Bird; Clerks, C. F. Sweet, C. W. Jones, L. Barton—all Republicans except Barton.

STATE LEGISLATURE IN 1911: Senate, Republicans, 9; Democrats, 22; House, Republicans, 65; Democrats, 86; joint ballot, Republicans 74; Democrats, 108; Democrats majority, Senate, 13; House, 21; joint ballot, 34.

The representatives in Congress will be found in the article UNITED STATES, section Congress.

MAINE, RAISING OF THE. The work of uncovering the wreck of the U. S. S. *Maine* in



Photograph by Underwood & Underwood, N. Y.

REMOVING THE WRECK OF THE U. S. S. "MAINE," HAVANA HARBOR
SHOWING THE COFFERDAM BUILT AROUND THE WRECK

Havana harbor, begun in 1910, was carried to a successful conclusion during the year 1911 by engineering officers of the United States army under the direction of Col. William M. Black, corps of engineers. The method employed was one of considerable originality, and its successful outcome was doubted in many quarters. The plan adopted was to enclose the wreck, which lay in about 35 feet of water, with a cofferdam built of sheet steel piling, this cofferdam consisting of cylinders 40 and 50 feet in diameter which were filled with mud and sand dredged from the harbor. After the wreck was surrounded by this construction, which was additionally strengthened by stone riprap, the enclosed area was pumped dry, and the mud removed so that towards the end of the year it was possible to make a complete study of the wreck. This was undertaken by a joint board of army and navy officers, and a complete report was submitted to the secretary of the navy. This report fully sustained the contention of the American navy officers that the battleship was destroyed by an outside explosion, and is summarized in the following official statement issued by the secretary of the navy on December 8:

"The board finds that the injuries to the bottom of the *Maine* were caused by the explosion of a charge of a low form of explosive exterior to the ship between frames 28 and 31, Strake B, port side. This resulted in igniting and exploding the contents of the six-inch reserve magazine, A-14-M, said contents including a large quantity of black powder. The more or less complete explosion of the contents of the remaining forward magazine followed. The magazine explosions resulted in the destruction of the vessel."

The joint army and navy board making this report consisted of Rear-Admiral Charles E. Vreeland, United States navy, chairman; Commander Joseph Strauss, United States navy, explosive and ordnance expert; Naval Constructor William B. Ferguson, who represented the navy at Havana during the uncovering the wreck; Chief Constructor Richard M. Watt, head of the bureau of construction and repair, and Lieut.-Col. William M. Black, United States army, of the engineer corps.

In reaching its decision the board made a most careful examination of the fragments of the hull, in the course of which all the twisted pieces were identified by comparison with the original plans. Naval Constructor Ferguson made special studies in great detail and constructed a model in which the framing, plating, and other structural features of the battleship were represented, and the effect of the explosion shown. The concrete evidence afforded by the wreck was systematically and orderly arranged, so that the proof of the external explosion was beyond question. The most important item in the chain of proof was an incurred bottom plate, which was found folded in and back in such a way as only to have resulted from the explosion of a low explosive, possibly a barrel of black powder which had been placed below the ship and exploded by contact with the bomb. Such an extemporized mine easily could have been placed in the vicinity of the battleship on a dark night, and would have sufficed to cause the destruction of the ship. Had it been a high explosive, the effect of the explosion would have been to have made a clear hole in the ship's bottom and not to distribute its force over about 200 square feet,

as was found when the bottom was examined. In other words, the mine was directly beneath the point indicated in the official report, and the plate immediately above was torn loose and blown inward to the rear until it was folded back. Directly above this was the 6-inch magazine referred to, which contained black powder used for saluting purposes. This was ignited and in turn exploded the forward magazine, so that the two distinct explosions described by the survivors of the disaster were accounted for. At the end of the year the wreck, while entirely exposed, had not been removed, but it was contemplated within a few months to float the least damaged part of the ship, take it off shore and sink it in deep water. It was decided to distribute such features as remained intact, like the turret and the military mast to the various parks and cemeteries, as Havana and Arlington, and minor relics to historical and other museums.

MAINE, UNIVERSITY OF. An institution of higher education, founded in 1865 at Orono, Me. The enrollment in the various departments in 1911-12 were as follows: College of agriculture, 198; college of arts and sciences, 117; college of law, 109; college of technology, 295; summer term and special courses, 172. The faculty numbered 101. During the collegiate year Robert Judson Aley became president of the university; Leon S. Merrill became dean of the college of agriculture; M. A. Chrysler became professor of biology; E. F. Hitchings became professor of horticulture; G. E. Simmons became professor of agronomy, and A. J. Jones became professor of education. The productive funds of the university amounted to \$218,300. The university receives from the State \$100,000, and from the federal government, \$50,000 for agriculture and \$30,000 for the experiment station. The total income from all sources amounted to \$64,543. The library contains about 45,000 volumes. The president is Robert Judson Aley.

MALACCA. See STRAITS SETTLEMENTS.

MALAY STATES. See FEDERATED MALAY STATES; JOHORE; KELANTAN; KEDAH; PERLIS; TRENGGANU.

MALDIVE ISLANDS, THE. See CEYLON.

MALENGRAAFITE. See MINERALOGY.

MALET, LUCAS, Mrs. Mary St. Leger Harrison. See LITERATURE, ENGLISH AND AMERICAN, Fiction.

MALLALIEU, WILLARD FRANCIS. An American bishop of the Methodist Episcopal Church, died August 1, 1911. He was born at Sutton, Mass., in 1828, and graduated from Wesleyan University in 1857. In the following year he entered the New England Conference of the Methodist Episcopal Church and became pastor of the church at Grafton, Mass. He was in succession pastor of churches at Chelsea, Lynn, Charlestown, and Boston. In 1875 he studied and traveled in Europe. On his return he became pastor of the Bromfield Street Church in Boston. In 1882 he was chosen presiding elder of the Boston district and in 1884 was elected bishop. He was a delegate to three national conferences and served as president and chairman of the executive committee of the General Conference commission on aggressive evangelism. He was a voluminous writer for reviews and magazines and was the author of *The Why, When and How of Revivals* (1901); *The Full*

ness of the *Blessing of the Gospel of Christ* (1903); and *Words of Cheer and Comfort*.

MALTA. A Mediterranean island; a British crown colony. The islands of Gozo (24½ sq. miles) and Comino, with several islets, belong to the colony; total area of colony, 117 sq. miles. Total civil population (April 2, 1911), 211,473; military population, 9023 (males and females). Capital, Valletta, with (1911) 22,882 inhabitants. Imports and exports for year ending March 31, 1911, £2,356,043 and £863,429 respectively. A large transit trade is carried on. Vessels entered at the port of Valletta, 3059, of 4,329,301 tons. Railways, 7½ miles. There are telephone but no telegraph lines. Revenue (1910-11), £441,444; expenditure, £467,373; debt, £79,115. Governor and commander-in-chief in 1911, Gen. Sir H. L. M. Rundle. Malta is the headquarters and chief coaling station of the Mediterranean fleet.

MALTA FEVER. Largely through the efforts of Gentry and Ferenbaugh of the United States army medical corps, it was learned that Malta fever has existed for a long time in Texas, being known in various localities under such names as goat fever, dust fever, Rio Grande fever, etc. The disease occurs almost exclusively among goat herders and their families. These people become infected either by drinking goats' milk or inhaling the dust from the bedding grounds which surround their homes. The herds consist almost entirely of pure-blooded Angora goats and are raised for the mohair which they produce. The Angora goats were first imported in 1867 from Asia Minor. There are also a number of Spanish and Maltese goats, and recently some have been imported from South Africa, where it is known that Malta fever exists. Altogether it is estimated that there are 175,000 goats in Edwards county, Tex., the principal goat-raising section of the State. Gentry and Ferenbaugh studied the disease in men and also examined 128 goats selected from different herds. About 20 per cent. of the animals examined showed the presence of the disease. Goats may harbor the infective organism *Micrococcus melitensis* without giving evidence of sickness themselves. Malta fever is a disease of long duration, characterized by continued fever, profuse perspiration, constipation, frequent relapses, rheumatic or neuralgic pains, swelling of the joints, or orchitis. The mortality, however, is low. The first clinical description of the disease was given by Maraton in 1861. In 1887 Colonel Bruce discovered the specific bacterium, and in 1897 Wright and Semple applied the method of serum agglutination to the diagnosis of the fever. In human beings: the micrococcus is excreted in the urine in a considerable proportion of cases, and this may be a means of conveying the disease from place to place, as well as of local dissemination.

MALT LIQUORS, CONSUMPTION OF. See LIQUORS.

MANANGS. See ANTHROPOLOGY.

MANCHESTER AQUEDUCT. See AQUEDUCTS.

MANCHURIA. A Chinese dependency, lying east of Mongolia and Pechili and between Korea and the Amur River. Capital, Mukden.

Estimated area, 363,610 sq. miles. Estimates of the population have varied greatly. The official Chinese estimate of 1902 was 16,000,000; the figure based on the Chinese household census of 1910 is 14,917,000 (see CHINESE EMPIRE, para-

graph *Area and Population*). The Manchu population has been largely absorbed by Chinese immigration, particularly in the south. Japanese settlers (1910), 24,996 (exclusive of about 30,000 in Kwantung). Mukden has over 158,000 inhabitants; Kuanchengtu (Changchun), 80,000; Ying-tse (sometimes called Newchwang, at the mouth of the Liao), 60,000; Newchwang (30 miles up the Liao), 50,000; Liaoyang, 40,000; Tsitsihar, 30,000.

The principal agricultural products are soy beans, kafir corn, millet, barley, corn, and tobacco. The most important is the soy bean crop, which provides most of the Chinese bean export, Manchurian commerce being included in that of the empire. No official returns of acreage and yield are available. Coal and iron ore are worked, and other minerals occur.

In 1911 there were in operation about 2150 miles of railway. There are three connecting systems though separate in management: The Chinese Eastern Railway (Russian), the South Manchurian Railway (Japanese), and the Imperial Railways of North China (Chinese). For details, see CHINESE EMPIRE, paragraph *Communications*.

Figures for revenue and expenditure later than 1910 are not available. In November of that year, the following figures by provinces were reported: Feng-tien, 16,180,000 taels revenue and 15,520,000 expenditure; Kirin, 8,480,000 and 9,540,000; Helungkiang, 540,000 and 551,000. Manchuria is administered by a governor-general appointed by the Chinese government (Tchao Ehr-siun in 1911). Russian "interests" extend from the north, and Japanese from the south, to Kuanchengtu. See KWANTUNG.

MANDERSON, CHARLES F. An American soldier and former senator from Nebraska, died September 28, 1911. He was born in Philadelphia in 1837 and received his education in the schools of that city. In 1856 he removed to Canton, Ohio, where he was admitted to the bar in 1859. In 1860-61 he was city attorney of that city. He enlisted in the Union army in 1861 as private, but filled all grades, including brigadier-general, resigning in April, 1865, with the latter grade. He participated in nearly all the battles of the Middle West and was severely wounded at Lovejoy's Station, Ga. At the close of the war he resumed the practice of law, and was twice elected prosecuting attorney of Stark county, Ohio. In 1869 he removed to Omaha. He was a member of the Nebraska constitutional convention in 1871 and in 1874 and was city attorney of Omaha for over six years. In 1883 he was elected United States senator and served in the Senate until 1895. In the Fifty-first and Fifty-second Congresses, he was president pro tempore of the Senate. On the expiration of his service in 1895 he became general solicitor for the Burlington system of railways. He was the author of *The Twin Seven Shooters* (1902), and of many speeches and addresses on political, legal, and war topics. He was president of the American Bar Association in 1900-1901.

MANHOOD SUFFRAGE. See GREAT BRITAIN, *History*.

MANITOBA. A province of the Dominion of Canada. Capital, Winnipeg (population, preliminary returns, census of June 1, 1911, 135,430). Area, 73,732 sq. miles; the final returns of the 1911 census showed a population of

455,614, as compared with 255,211 in 1901, or an increase of 78.52 per cent. The province is administered by a lieutenant-governor (Sir Douglas Colin Cameron, appointed in 1911) appointed by the governor-general of Canada; aided by an executive council (responsible ministry), and a unicameral legislative assembly of 41 members elected for four years. Premier (1911), Rodman P. Roblin. See CANADA.

MANN-ELKINS ACT. See RAILWAYS.

MANŒUVRES. See MILITARY PROGRESS.

MANSSELL, HENRY. An American clergyman and missionary, died November 9, 1911. He was born at Youngstown, Ohio, in 1835, and graduated from Allegheny University. After studying theology he entered the Methodist ministry. He preached for three years in Pennsylvania and in 1861 went to India, as one of half a dozen missionaries under the auspices of the Methodist Episcopal denomination. He became principal of the Theological Institute at Bareilly, India, and presiding elder of several districts in northwest India. During his stay in India he either translated or wrote forty-two books for the use of the natives. Among these were the works of *Josephus*, the *Bible*, and *Pilgrim's Progress*.

MANUFACTURES, ELECTRICAL. See ELECTRICAL INDUSTRIES.

MAP MAKING, AFRICAN. See EXPLORATION.

MARAÑÓN RIVER. See EXPLORATION.

MARATHONS. See CROSS COUNTRY RUNNING.

MARCH, FRANCIS ANDREW. An American philologist, died September 9, 1911. He was born at Milbury, Mass., in 1825 and graduated from Amherst College in 1845. He studied law and in 1850 was admitted to the New York bar, but he was compelled by ill health to give up practice. In 1856 he was appointed professor of English language and comparative philology at Lafayette College and remained in this position until 1906. He was a pioneer in the philological study of English classics and the historical study of the English language. He was president of the American Philological Association for two terms and of the Spelling Reform Association from 1876 to 1905 and of the Modern Language Association for two years. He was vice-president of the New Shakespeare Society of London. He was chairman of the commission of the State of Pennsylvania on amended orthography. He served as consulting editor on the Standard Dictionary and was the author of many books on English. Among these are: *Method of Philological Study of the English Language* (1865); *Comparative Grammar of the Anglo-Saxon Language* (1870); *Anglo-Saxon Reader* (1870), and an *A-B-C Book* (1880). He edited *Latin Hymns, with English Notes*, and a *Thesaurus-Dictionary of the English Language* with his son, F. A. March, Jr., and contributed many articles to encyclopædias, periodicals, and the transactions of learned societies on philosophical and philological subjects, particularly Anglo-Saxon, and on literature, particularly Shakespeare and American literature. He was given the degree of L. H. D. by Columbia University in 1887, D. C. L. by Oxford University in 1896, and Litt. D., by Cambridge and Princeton universities. From 1896 to the time of his death he was

professor emeritus of philology at Lafayette College.

MARIANNE, or LADRONE, ISLANDS. See GERMAN NEW GUINEA.

MARIA PIA, QUEEN DOWAGER OF PORTUGAL, died July 5, 1911. She was born in 1847 at Turin, the daughter of Victor Emmanuel II. of Italy. At the time of her birth, however, he was only King of Sardinia. In 1862 she was married to King Luiz I. of Portugal. She became the mother of King Carlos I., who ascended the throne of Portugal October 9, 1889, on the death of his father. Queen Maria's life was one of much sorrow. Her brother, King Humbert of Italy, was assassinated at Monza in 1900. On February 1, 1908, her son, King Carlos, and Prince Luiz, the heir to the throne, were shot down by assassins in Lisbon. After the accession of King Manuel she lived in close retirement, devoting much of her time to charitable works. When King Manuel was forced to flee from Portugal as the result of the revolution in 1910, Queen Maria went to live with her sister, Princess Clotilda, near Turin, Italy. Princess Clotilda died eleven days previous to the death of Queen Maria.

MARINE BIOLOGICAL LABORATORY. See BIOLOGICAL LABORATORY.

MARIOTTE. See NAVAL PROGRESS, Submarines.

MARSHALL ISLANDS. A German dependency consisting of two chains of lagoon islands in the Pacific and administered under the German New Guinea government. European population (1910), 179; other, 15,000. Imports (1909), 1,610,238 marks; exports, 5,217,418 (phosphate, 4,486,200). The commissioner (1911, Dr. Kersting) resides at Jaluit.

MARTINE, JAMES EDGAR. United States senator (Democrat) from New Jersey. He was born in New York City in 1850 and was educated in the public schools. He engaged in farming and never held public office until he became senator. At the primary election for the United States senator in November, 1910, he received 48,458 votes to 39,554 for Charles E. Stokes, 38,818 for Charles N. Fowler, and 36,240 for Franklin Murphy, Republicans. He was, in accordance with the primary law of the State, therefore elected United States senator by the legislature (see NEW JERSEY). His term of service expires in 1917.

MARTINIQUE. An island of the Lesser Antilles; a French colony. Area, 381 sq. miles; population (1906), 182,024. Capital, Fort-de-France (27,015 inhabitants). Pupils in primary schools (1909), 13,797. Area under sugar-cane (1909), 19,000 hectares; cacao, 1560. Coffee, vanilla, and tobacco are also grown. Sugar works, 15. Total imports (1909), 16,160,898 francs; exports, 22,111,719. Vessels entered (1909), 342, of 335,230 tons. There is external cable as well as internal telephonic communication; there are no railways. Post offices, 53. The local budget balanced (1911), at 4,645,000 francs (French contribution, budget of 1911, 2,632,272). Debt on January 1, 1911, 4,511,000 francs. Governor (1911), M. Fourreau.

MARYLAND. POPULATION. The Thirtieth Census, taken in 1910, showed the population of the State in that year as 1,295,346, as compared with 1,188,044 in 1900, an increase of 107,302 or 9 per cent. in the decade. The prin-

incipal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Baltimore, 558,485 (508,957); Cumberland, 21,830 (17,128); Hagerstown, 16,507 (13,591); Frederick, 10,411 (9296).

AGRICULTURE. The Thirteenth Census, taken in 1910, included statistics of agriculture in the State. The figures given are of date of April 15, 1910. On that date the number of all farms in the State was 48,923, as compared with 46,012 in 1900. Out of an approximate land area of 6,362,240 acres, 5,057,140 acres was land in farms. The improved land in farms was 3,354,767 acres. The average number of acres per farm was 103.4, as compared with 112.4 in 1900. The total value of farm property was \$286,167,028 in 1910, as compared with \$204,645,407 in 1900, or an increase of \$81,521,621. The average value per farm, including equipment, was \$5849. Of the 48,923 farms in the State in 1910, 34,507 were operated by owners and managers, and 14,416 by tenants. In 1900 there were 30,565 farms operated by owners and managers and 15,447 by tenants. Of the 33,519 farms owned by operators in 1910, 21,084 were free of mortgage while 12,127 were mortgaged. Native white farmers operated 40,669 farms; 1882 were operated by foreign-born whites and 6372 by negroes and other non-whites. One-eighth of the Maryland farmers are negroes.

The total value of the domestic animals, poultry, and bees of the farms of the State on April 15, 1910, was \$32,570,134, as compared with a value of \$20,855,877 in 1900. Cattle numbered 287,751, with a value of \$7,869,526; horses and colts, 155,438, valued at \$16,787,467; mules, 22,667, valued at \$3,043,581; swine, 301,583, valued at \$1,765,857; sheep and lambs, 237,137, valued at \$1,142,965. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	670,000	24,455,000	\$15,407,000
.....1910	660,000	22,110,000	12,824,000
Wheat ....1911	605,000	9,378,000	8,534,000
.....1910	604,000	10,510,000	9,669,000
Oats .....1911	46,000	1,242,000	609,000
.....1910	47,000	1,410,000	649,000
Rye .....1911	28,000	406,000	349,000
.....1910	29,000	467,000	350,000
Potatoes ..1911	39,000	1,755,000	1,597,000
.....1910	40,000	3,800,000	2,052,000
Hay .....1911	276,000	a 199,000	4,458,000
.....1910	291,000	393,000	6,052,000
Tobacco ..1911	20,000	b 19,110,000	1,433,250
.....1910	30,000	20,700,000	1,593,900

a Tons. b Pounds.

MINERAL PRODUCTION. The mineral products of the State in 1910 were valued at \$15,440,207. Of this the coal produced was valued at \$5,835,058; pig iron, \$5,230,824; clay products, \$1,848,273; lime, \$377,236. Other products are mineral waters, and slate and feldspar.

The production of coal in the State in 1910 was 5,217,125 short tons, with a value of \$5,835,058. The State benefited indirectly from the six months' strike of the miners in the Central and Mississippi River Valley States. The production of coal in the State had shown a decline in the last two years as a result of the approaching exhaustion of the famous "big vein." As a result of conditions noted above, however, there was an increase over the product of 1909 of 1,193,884 tons. The coal mines of

the State in 1910 gave employment to 5889 men, who worked an average of 270 days. There were no labor troubles in the State during the year.

The iron ore mined in the State in 1910 amounted to 14,062 tons, valued at \$29,105, as compared with 23,888 tons, valued at \$46,786 in 1909.

MANUFACTURES. The Thirteenth Census included statistics of manufactures in the State. These figures cover the calendar year 1909. The following table gives a summary of the results of the census for the calendar years 1909 and 1904, with per cent. of increase from 1904 to 1909 and from 1899 to 1904:

	Number or amount	Increase 1
	1909	1904 1899-1904
Number of establishments	4,837	3,852 25.6 —0.9
Persons engaged in manufactures	125,489	107,303 16.9 (2)
Proprietors and and firm members	5,376	4,505 19.3 (2)
Salaried employees	12,192	8,624 41.4 27.9
Wage earners (average number)	107,921	94,174 14.6 (3)
Primary h.p.	218,244	165,449 31.9 25.3
Capital	\$251,227,000	\$201,878,000 24.4 35.3
Expenses	285,955,000	216,917,000 31.8 18.3
Services	59,053,000	44,988,000 31.3 14.6
Salaries	12,617,000	8,844,000 54.0 29.2
Wages	45,436,000	36,144,000 25.7 11.5
Materials	193,049,000	150,024,000 32.7 16.0
Miscellaneous	27,853,000	21,905,000 27.2 48.2
Value of products	315,669,000	243,376,000 29.7 15.3
Value added by manufacture (value of products less cost of materials)	116,620,000	93,352,000 24.9 14.2

1 A minus sign (—) denotes decrease. 2 Figures not available. 3 Less than one-tenth of 1 per cent.

It will be seen from this that there was a considerable increase in the number of establishments in the five-year period, 1904-1909, with a corresponding increase in the value of the product. The industry employing the largest number of wage-earners was the men's clothing industry, in which 19,784 persons were employed. In the business of canning and preserving were employed 8613 wage-earners, and in the industries connected with lumber and timber products, 7003. The copper, tin, and sheet-iron industries employed 5275, and in the manufacture of foundry and machine-shop products were employed 4798. Other industries employing over 1000 men were tobacco manufactures, cars, and general shop construction by steam railroad companies, printing and publishing, cotton goods, including cotton small wares, women's clothing, furniture, and refrigerators, straw hats, and marble and stone work. The industry in which the largest capital was invested was the clothing industry, \$36,921,000. In the manufacture of copper, tin, and sheet-iron products was invested \$16,909,000; in canning and preserving, \$13,709,000; in slaughtering and meat-packing, \$13,683,000, and in lumber and timber products, \$12,134,000. The manufacturing industry of the State as a whole showed a greater development during the five-year period, 1904-1909, than for the preceding

five-year period, 1899-1904. The persons engaged in manufactures numbered 125,489, of whom 91,239 were males and 34,250 were females. The wage-earners under sixteen years of age numbered 6548. Almost three-fourths of the total number of wage-earners employed in the industries of the State were in establishments where the prevailing hours of labor per week ranged from 54 to 60, or from 9 to 10 hours a day, and of these over one-half were employed 60 hours per week.

EDUCATION. The total school population between the ages of five and twenty years on June 30, 1911, was 415,908. The number of different pupils enrolled during the year was 237,119. The average daily attendance was 145,349. The number of schools in counties was 2394, while in the city of Baltimore there were 108. The teachers in the counties numbered 3819 and in Baltimore 1830.

FINANCE. According to the report of the treasurer for the fiscal year ended September 30, 1910, there was a cash balance in the treasury at the beginning of 1910 of \$1,328,069. The receipts during the year amounted to \$5,875,598. The disbursements amounted to \$6,328,557, leaving a cash balance of \$875,111 at the end of the fiscal year. The State debt amounted at the end of the fiscal year to \$7,529,926, an increase of \$811,000 during the year.

POLITICS AND GOVERNMENT

The State legislature did not meet in 1911, as the sessions are biennial and the last was held in 1910. The political history of the State was of unusual interest and importance. Municipal and State elections were held. For the nomination of State officers the first trial of the new State-wide primary law was made. Municipal primaries were held on April 4 in Baltimore. The contest was unusually bitter and it resulted in the victory of the organization of both parties. Interest centred in the fight for the Democratic nomination for mayor. James H. Preston was the candidate for the nomination against Mayor J. Barry Mahool. Mr. Preston had the support of the organization, but was bitterly opposed by the newspapers of the city as being the mere tool of the political managers. In spite of this he was nominated by a majority of over 9000, the total vote being 29,978 for Preston, against 20,855 for Mahool. In the Republican primaries E. Clay Timanus received the nomination. He had the support of the Republican organization and was opposed by Charles H. Torsch. He made his fight on the issue of anti-bossism. Mr. Timanus won by a vote of 17,843 to 4594. In the municipal elections held on May 2 Mr. Preston was elected.

On August 26, the first election held under the new primary law of the State, resulted in the nomination of Arthur P. Gorman as the Democratic candidate for governor, and on September 7 he was declared nominated for the office by the State convention. Phillips Lee Goldsborough was nominated by the Republicans without a contest. While the Democrats are numerically stronger in Maryland than the Republicans, the party was more or less divided on account of factional troubles. The Republicans, on the contrary, were united. Many Democrats opposed Mr. Gorman on account of his supposed connection with the political machine of Baltimore, which was charged with having

practically nominated him. Frauds in the primary at which he was nominated, but which did not involve his nomination, were charged and a large number of election officers of both parties were indicted. The frauds were perpetrated against Thomas F. McNulty, an aspirant for the Democratic nomination for sheriff, and this caused the loss of many votes to the Democratic party. The election on November 7 resulted in the election of Mr. Goldsborough by a plurality of 3997 votes. The total vote cast was: Goldsborough, 106,392; Gorman, 103,395.

The grand jury for Baltimore city, which investigated the August primaries and indicted the election officials, desired to investigate also the spring primary. The law requires the ballot boxes to remain unopened for six months, but the grand jury not being able to begin the count at once got an order from the court for the election supervisors to keep the boxes sealed until the jury was ready for them. But when this order was signed the six months had elapsed and the boxes had already been emptied for use at the coming election. The election supervisors did not tell this to the court, leaving the impression that the boxes were intact. They did this with the assent of the Republican member, believing that it would have an effect on the election if the announcement were made. When it was discovered after the election that the boxes had been emptied there was some excitement.

While a Republican was elected governor at the November election, both houses of the legislature were Democratic by large majorities. In the time between the election and the meeting of the legislature on the 3d of January, 1912, there was much talk of depriving the governor of a large part of his patronage, but nothing was done.

In December, 1910, an ordinance was passed by the mayor and council of Baltimore providing for the segregation of negroes of that city. This measure provided that no white family should move into a block where the majority of the residents were negroes, and that no negro could occupy a residence in a block that was inhabited chiefly by white people. The object of the measure was to segregate the negroes and prevent them from residing in white neighborhoods. The question arose as to the constitutionality of the measure and it was decided by the city solicitor that it was valid. The ordinance therefore went into effect December 19, 1910. Suits were at once begun to test the law, and on February 4, 1911, Judges Harlan and Duffy handed down a decision which in effect declared the ordinance invalid. Thereupon the city council passed another ordinance even more stringent than the first. This not only prevents negroes from moving into blocks now totally inhabited by white persons, but does not allow them to have churches or places of amusement in white blocks. Unlike the former ordinance, it allows blocks in which white persons and colored persons are living to remain mixed until they shall become either totally inhabited by negroes or white persons. It also prohibits white persons from moving into blocks where the majority of the inhabitants are negroes. There has been acquiescence in this ordinance and it has not been questioned in the courts. The object of the ordinance was to prevent the deterioration in the value of

property which takes place when a negro family moves into a block exclusively inhabited by whites.

During the year Governor Crothers, Democrat, preferred charges of incompetence and misconduct against the board of police commissioners of Baltimore city, which had been appointed by himself. The trial before the governor created much feeling. It was protracted and expensive and the charges were finally dismissed by the governor.

On the 17th of January there was a great meeting at the Lyric Hall, and a dinner in the evening at the Fifth Regiment Armory, in memory of Andrew Jackson. Leading Democrats, governors, senators, and representatives, editors, and others came from many States. At the dinner there were more than one thousand guests at the tables. At this dinner Mr. Blackburn of Kentucky, at the request of Mr. O. P. Baldwin of the *Baltimore Sun*, first suggested Baltimore as the place for the Democratic national convention of 1912. Later on Baltimore was selected.

STATE OFFICERS, 1912. Governor, Phillips L. Goldsborough; Secretary of State, N. Winslow Williams; Treasurer, Murray Vandiver; Adjutant-General, Henry M. Warfield; Attorney-General, Edgar Allan Poe—all Democrats except Goldsborough.

JUDICIARY. Court of Appeals: Chief Judge, Andrew H. Boyd; Associate Judges, N. Charles Burke, William H. Thomas, John R. Pattison, Hammond Urner, John P. Briscoe, Henry Stockbridge, and James A. Pearce; Clerk, Caleb C. Magruder—all Democrats except Stockbridge and Urner, Republicans.

STATE LEGISLATURE, 1912. Democrats, Senate, 19; House, 63; joint ballot, 82. Republicans, Senate, 8; House, 40; joint ballot, 48. Democratic majority, Senate, 11; House, 23; joint ballot, 34.

The representatives in Congress will be found in the article UNITED STATES, section Congress.

MASON, FREDERICK. See LITERATURE, ENGLISH and AMERICAN, *General Biography*.

MASSACHUSETTS. POPULATION. The Thirteenth Census, taken in 1910, showed the population of the State in that year as 3,366,418, compared with 2,805,346 in 1900, a gain of 561,070 or 20 per cent. in the decade. The principal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Boston, 670,585 (560,802); Worcester, 145,986 (118,421); Lowell, 106,294 (94,969); Springfield, 88,926 (62,059); Lawrence, 85,892 (62,559); Brockton, 56,878 (40,063); Salem, 43,697 (35,956).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the number of farms in the State was 36,917, as compared with 37,715 in 1900, a decrease of 798, or 2.1 per cent. The land in farms was 2,875,941 acres, as compared with 3,147,064 in 1900, a decrease of 271,123 acres. The improved land in farms was 1,164,501, as compared with 1,292,132 in 1900, a decrease of 127,631 acres. The average acreage per farm was 77.9, compared with 83.4 in 1900. The value of farm property, including lands, buildings, implements, and machinery, domestic animals, poultry, and bees, was \$226,474,025, as compared with \$182,646,704 in 1900. The average value of all property per farm was \$6175, as compared with \$4843 in 1900.

The average value of land per acre was \$36.69, as compared with \$27.62 in 1900. Of the 36,917 farms in 1910, 33,938 were operated by owners and managers, 2979 were operated by tenants. Of the farms operated by owners, those free from mortgage numbered 18,768; mortgaged, 13,014. Of those managing and operating farms, 28,431 were native whites, 8362 were foreign-born whites, and 124 were negroes or other non-whites. The domestic animals, poultry, and bees on the farms in the State in 1910 were valued at \$20,741,366, as compared with a value in 1900 of \$15,798,464. The cattle numbered 252,416, valued at \$9,348,076; horses and colts, 64,283, valued at \$8,671,997; mules, 268, valued at \$43,385; swine, 103,018, valued at \$978,989; sheep and lambs, 32,708, valued at \$156,498. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the table below:

	Acreage	Prod., bu.	Value
Corn .....1911	47,000	2,068,000	\$1,716,000
1910	45,000	2,048,000	1,484,000
Oats .....1911	8,000	280,000	162,000
1910	8,000	284,000	142,000
Rye .....1911	3,000	48,000	46,000
1910	3,000	51,000	48,000
Potatoes ..1911	25,000	2,325,000	2,232,000
1910	25,000	3,125,000	2,188,000
Hay .....1911	584,000	a 631,000	14,513,000
1910	590,000	755,000	14,420,000
Tobacco ..1911	5,600	b 9,240,000	1,848,000
1910	5,500	9,515,000	1,427,250

a Tons. b Pounds.

The mineral products of the State in 1910 were valued at \$6,077,370. Of this, stone, of which Massachusetts is one of the largest producers, was valued at \$3,539,794; clay products, \$1,707,413; lime, \$758,739; mineral waters, \$241,949.

CHARITIES AND CORRECTIONS. All the charitable institutions of the State fall under the supervision of the State Board of Charities, and all correctional institutions are supervised or controlled by the Board of Prison Commissioners.

The charitable institutions, with their average population in 1911, were as follows: The State Farm, 2660; the State Infirmary, 2201; the Lyman School, 324.3; Industrial School for Boys, 115.45; the State Industrial School for Girls, 274; the Massachusetts Hospital School, 214.77; Rutland State Sanatorium, 345; Lakeville State Sanatorium, 158.81; North Reading State Sanatorium, 158.23; Westfield State Sanatorium, 156.8; Penikese Hospital (for lepers), 12.

Massachusetts, like other States, is still in a period of legislative uncertainty in its fight against tuberculosis. The four State sanatoria serve as hospitals for the relief of patients, but more especially as schools where the public learns how to combat this disease. The Rutland State Sanatorium is the first of its kind in the country. Its normal capacity is 350 patients. During the past year the daily average number of patients has been five under the normal. The greatest number at any one time during the year exceeded the normal by four. The three new sanatoria, namely the Lakeville State Sanatorium, the North Reading State Sanatorium, and the Westfield State Sanatorium, have each a normal capacity of 150 patients. The daily average number of persons at each exceeded the normal by 8.81, 8.23, 6.8,

respectively. Grants of money are being sought with a view to extending the normal capacity to a point beyond this excess. A law was passed in 1911 subsidizing cities and towns for the care of tuberculosis cases wherever a municipal or town hospital for contagious diseases should be established. This policy has been entered upon with a view to encouraging local effort in fighting the disease.

FINANCE. According to the report of the treasurer for the year ending November 30, 1910, there was a balance on hand December 1, 1909, of \$1,675,173. The net receipts during the year amounted to \$11,992,395 and the expenditures to \$13,481,137, leaving a cash balance on hand at the end of the fiscal year of \$2,186,431. The total bonded debt of the State at the end of the fiscal year was \$81,077,452.

POLITICS AND GOVERNMENT

The legislature met in 1911 and passed a number of important measures. These are noted in the paragraph *Legislation* below. On January 5 Eugene N. Foss was inaugurated governor of the State. Governor Foss was elected in November, 1910. The expiration of the term in the Senate of Henry Cabot Lodge made it necessary for the legislature to elect a United States senator. Senator Lodge was a candidate for reelection and on January 18 received sufficient votes to be reelected. The lower house of the legislature on April 17 ratified the income tax amendment, but this was defeated on May 3 in the Senate by one vote. The House on June 27, by a vote of 125 to 75, refused a proposed amendment to the constitution for the initiative and referendum. The Democrats in the House supported the amendment as a unit.

State elections were held in 1911, as well as several municipal elections. On January 10 elections were held in Boston for members of the city council and other minor officers. This election was the second under the new city charter by which a mayor is chosen for four years and the city council of nine for terms of one, two, and three years each. There was little interest shown in the election. Out of a total registration of 112,000, only 52,000 votes were cast. The city voted for license by 36,855 to 17,420.

The chief political interest in the year centered in the election of governor. Governor Foss was a candidate for reelection. The leading Republican candidate was Louis A. Frothingham, who had previously served as lieutenant-governor of the State. The nominations were made under the new primary law, by which all State officers are nominated by direct nomination. The primary elections for nominations were held on September 30. These resulted in the nomination of Governor Foss by the Democrats and Mr. Frothingham by the Republicans. These nominations were afterwards confirmed by State conventions of the two parties. These conventions are purely formal under the new law. The only function of the convention is to adopt a platform. The Republican convention, held on October 4, indorsed the administration of President Taft and upheld the principle of protection. The Democratic convention, held on the same day, denounced the action of the Republican party in its attitude toward tariff revision, called for inquiries into the matter of employment of women

and children in the State, demanded a federal income tax, pledged the party to secure the constitutional amendment for initiative and referendum, and urged the adoption of the Oregon plan for the ballot for senatorial candidates at the State elections. A platform was adopted calling for the submission of the question of woman suffrage to a vote of the people. Recommendations were adopted calling for the development of seaports and inland waterways. The campaign which followed the conventions was very spirited. Although Governor Foss had been elected in 1910 by a large plurality, his election was attributed to special reasons which the Republicans believed would not again be prominent as factors in the election. Mr. Frothingham was popular throughout the State and his supporters were confident of his election. The vote, however, resulted in the reelection of Governor Foss by a plurality of 8102. The total vote was: Foss, 214,897; Frothingham, 206,795. Governor Foss received on the Democratic Progressive ticket 36,160 votes, and on tickets without designation 5759 votes. The Socialists polled in the election 13,355 votes. Governor Foss carried Boston by a plurality of about 22,000, as compared with 27,700 in 1910. The election was considered to be a great personal victory for Governor Foss. This was emphasized by the fact that the Republicans elected all the other State officers, including lieutenant-governor.

Elections were held on December 19 in North Adams, Lowell, and Lawrence. All three voted for license, as they had the year before. In Lowell and Lawrence the elections were held under a new charter, by which party names were eliminated.

OTHER EVENTS. On March 29 Governor Foss appointed a commission to consider the development of inland waterways along the Massachusetts coast. On May 19 the Supreme Court of the State declared constitutional the law imposing an excise tax on inheritances left in trust. On May 25 the city of Springfield celebrated the 275th anniversary of its founding, with appropriate ceremonies.

On December 16 a public meeting was held in Boston for the purpose of forming a progressive organization within the Republican party. The meeting was addressed by Gifford Pinchot, Governor Bass of New Hampshire, and George L. Record of New Jersey. The Rev. Samuel M. Crothers presided. No declaration was made in favor of any presidential candidate, but Mr. Pinchot declared his own personal adherence to Senator La Follette as the Republican candidate for the presidency.

LEGISLATION. The important measures passed at the legislative session of 1911 include the following: October 12, known as Columbus Day, is made a legal holiday. Persons who on being arrested for a crime are found armed with a revolver or a pistol without a license shall be punishable by imprisonment for not less than one nor more than ten years. An act to make uniform the law relating to desertion and non-support of wife by husband or of children by either father or mother was passed. Women, and children under eighteen years of age, are prohibited from being employed for more than fifty-four hours per week in manufacturing or mechanical establishments. Railroads are obliged to furnish individual drinking cups for

the use of passengers. Persons selling pistols, revolvers, or other small firearms must have a license and must keep a record of names and descriptions of all purchasers. A pension system for the employees of the commonwealth is established. A measure was passed providing for the direct nomination of candidates for substantially all the offices to be filled at a State election, such nomination to be had by means of primary elections. The number of justices of the Superior Court is increased from twenty five to twenty-eight. Every town and city of more than 10,000 inhabitants is required to maintain a dispensary for the discovery, treatment, and supervision of needy residents afflicted with tuberculosis. Any person who after being indicted is kept in jail for more than six months without trial and is finally acquitted or discharged may receive compensation from the county if the judge who presided at the trial thinks proper. Counties are permitted to establish pension systems for their employees. An act was passed providing for the development of the port of Boston at an expense not exceeding \$9,000,000. A workmen's compensation act was passed. See **WORKINGMEN'S COMPENSATION**.

STATE GOVERNMENT, 1911. Governor, Eugene N. Foss; Lieutenant-Governor, Robert Luce; Secretary of State, Albert P. Langtry; Treasurer, Elmer A. Stevens; Auditor, John E. White; Adjutant-General, _____; Attorney-General, James M. Swift; Secretary of the Board of Agriculture, J. Lewis Ellsworth; Commissioner of Insurance, Frank H. Hardison; Commissioner of Education, David Snedden—all Republicans except Foss.

JUDICIARY. Supreme Judicial Court for the Commonwealth: Chief Justice, Arthur Prentice Rugg; Justices, James M. Morton, John W. Hammond, Henry Newton Sheldon, William C. Loring, Henry K. Braley, and Charles Ambrose De Courcy; Clerk of the Court, Walter F. Fredrick—all Republicans.

STATE LEGISLATURE, 1912. Republicans, Senate, 27; House, 146; joint ballot, 173. Democrats, Senate, 13; House, 92; joint ballot, 105. Others, House, 2; joint ballot, 2. Republican majority, Senate, 14; House, 52; joint ballot, 66.

The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. An institution for technical education at Boston, Mass., founded in 1864. The number of students enrolled in the various departments of the institute in 1910-11 was 1750. The faculty numbered 99 professors, 4 instructors, and 48 assistants. There were no notable changes in the faculty during the year. Gifts were received to the amount of \$41,644. The productive funds of the institute amounted to \$1,891,627. The library contains about 85,000 volumes. Plans under way for a new site and buildings approached completion at the end of 1911. The president is Richard C. MacLaurin, LL. D.

MATANUSKA COAL FIELD. See ALASKA.

MATHER, ROBERT. An American lawyer, railway official, and financier, died October 24, 1911. He was born in Salt Lake City, Utah, in 1859. He attended school at Galesburg, Ill., until he was thirteen years of age, when he became employed in a factory making electrical apparatus. After three years here he took up railroading in the mechanic's office of the Chicago, Burlington & Quincy Railroad.

In 1877 he entered Knox College, graduating in 1882. After leaving the college he entered the director's office of the Chicago & Burlington road and there acquired a knowledge of railroad finances. At the same time he studied law and in 1886 was admitted to the bar in Chicago, where he practiced law for three years. He became the Chicago attorney for the Chicago, Rock Island & Pacific Railway in 1889, and in a few years was made general counsel for the road. He soon afterwards became in turn second vice-president and first vice-president of the railroad. In 1904 he became chairman of the executive committee and president of the Rock Island Railway Company. He was president of the Rock Island lines for about four years. He was connected in an executive capacity with several other important railroads. He was elected chairman of the board of directors of the Westinghouse Electric and Manufacturing Company in 1909. He reorganized this company, which had fallen into financial difficulties. He was identified with many other financial and industrial offices as official and director.

MATTHEWS, EDMUND ORVILLE. A rear-admiral, retired, of the United States navy, died January 29, 1911. He was born in Baltimore in 1836 and graduated from the United States Naval Academy in 1855. He was promoted through successive grades, becoming commodore in 1894 and rear-admiral in 1897. He served throughout the Civil War and participated in many engagements. From 1865 to 1869 he was head of the torpedo corps at the Naval Academy. He was commandant at the Brooklyn Navy Yard from 1885 to 1887 and was captain of the Boston Navy Yard from 1887 to 1890. From 1891 to 1894 he was a member of the Board of Inspection and Surveys. He was chief of the Bureau of Yards and Docks from 1894 to 1898 and was president of the Examining and Retiring Boards in 1898-9. He was retired in 1898.

MAURITANIA. A civil territory in French West Africa (q. v.). Area, 257,360 sq. kilometers (99,367 sq. miles); or, with unsurveyed areas to the north and northeast, about 890,000 sq. kilometers. Recently estimated population, 225,158 (158 French). Schools (1909): 1 official, with 45 pupils; 114 Musulman, with 1297 (without Tarza). Telegraph lines, 455 kilometers; telephone, 21. Post and telegraph offices, 5. Revenue in 1909, 2,194,730 francs; expenditure, 1,676,454. The territory is administered by a commissioner (1911, Lieutenant-Colonel Gouraud) under the direction of the governor-general of French West Africa.

MAURITIUS. An island in the Indian Ocean; a British crown colony. Area, 705 sq. miles; population in 1901, 375,385 (261,191 of Indian, the remainder of French or mixed descent). Census of April 2, 1911, 370,381 (257,793 Indians). Capital, Port Louis (50,060 inhabitants). Imports (1910), Rs.37,258,217 (1909, Rs.28,937,005); exports, Rs. 36,154,956 (1909, Rs.32,393,453). Vessels entered (1909), 191, of 378,163 tons; cleared, 189, of 376,987. Revenue and expenditure (year 1909-10) Rs.10,799,723 and Rs.9,449,375 respectively. Public debt (June 30, 1910), £1,300,890; paper circulation, Rs.5,120,250. Governor and commander-in-chief (1911), Maj. John Robert Chancellor.

RODRIGUES, ST. BRANDON (or CARBADOS) Is-

LANDS, the CHAGOS ISLANDS, and the TROIS FRÈRES (or EAGLE ISLANDS) are dependencies of Mauritius.

A mob of natives wrecked a number of shops and newspaper offices in the course of election riots at Curepipe and Port Louis in the latter part of January. The troops were called out and in the course of the riots two civilians were killed.

MAWSON, DOUGLAS. See POLAR RESEARCH.
MAYOTTE AND THE COMORO ISLANDS. A group of islands belonging to France, administered under the government of Madagascar. Total area, 837 sq. miles; total population (1906), 96,314; of which population Mayotte (140 sq. miles) contains about one-fourth. Grande Comore, Moheli, Anjouan, and a number of smaller islands constitute the Comoro group. Vanilla is the most important cultivation; other products are sugar-cane, coffee, tea, cacao, and perfume-yielding plants. Imports (1909), 1,133,429 francs; exports, 2,700,652. The local budget balanced (1907) at 247,410 francs. French expenditure (budget of 1910), 3000 francs. Debt, January 1, 1907, 883,760 francs. Administrator for Mayotte (1911), M. Astor. A resident is appointed to each of the three principal Comoros.

MEAD, CHARLES MARSH. An American theologian and educator, died in February, 1911. He was born in 1836 at Cornwall, Vt., and graduated from Middlebury College in 1856. Graduating from the Andover Theological Seminary in 1862, he studied for four years at the universities of Halle, Berlin, and Tübingen. He was ordained to the Congregational ministry in 1866, and was professor of Hebrew at Andover Theological Seminary from 1866 to 1882. From 1882 to 1892 he lived in Germany. He was appointed professor of Christian theology at the Hartford Theological Seminary in 1892 and served in this position until 1898. He was one of the original members of the American Bible Revision Committee and was active in the work of the revision of the Old and New Testaments. Among his published works are "Exodus" (in Lange's Commentary, 1876); *The Soul Here and Hereafter* (1879); *Christ and Criticism* (1893), and *Irenic Theology* (1905). He also contributed numerous articles to magazines and encyclopædias.

MEAT PRODUCTION. See STOCK-RAISING.

MECHANISM. See BIOLOGY.

MECKLENBURG, DUKE OF. See EXPLORATION.

MECKLENBURG-SCHWERIN. See GERMANY.

MECKLENBURG-STRELITZ. See GERMANY.

MEDICAL PROGRESS IN 1911. The problems of immunity to infectious diseases and the development of serums and vaccines engrossed the attention of laboratory workers to a large extent. (See SEBUM THERAPY.) Various forms of radiation were employed more widely than ever before, both for diagnostic purposes and for the treatment of disease. (See PHOTOTHERAPY.) Many improvements were made in sanitation and the control of infectious diseases. (See HYGIENE, PELLAGRA, HOOKWORM DISEASE, INFANTILE SPINAL PARALYSIS, RABIES, TETANUS. TYPHOID FEVER, VACCINATION.) Maladies peculiar to hot climates

continued to demand a large amount of attention, and life for the white races was made more secure than ever before in the tropics. (See BERIBERI, INSECTS AND THE PROPAGATION OF DISEASE, SLEEPING SICKNESS, and TROPICAL DISEASES.) Several meritorious new drugs were exploited, among which may be mentioned ADALIN, HORMONAL, OVOGAL, SALVARSAN, and XERASE. The search for the cure of cancer and the means of limiting the spread of tuberculosis was continued. (See CANCER, TUBERCULOSIS.) Other medical items of special notice and also medical statistics will be found under their respective captions.

MEDICAL SCHOOLS. See UNIVERSITIES AND COLLEGES.

MEDIUMS. See PSYCHICAL RESEARCH.

MEJLISS. See PERSIA.

MELILLA. See MOROCCO, *History*.

MELOS. See ARCHÆOLOGY.

MEMPHIS (TENN.). See MUNICIPAL GOVERNMENT.

MENDELISM. See BIOLOGY.

MENTAL HEALING. See PSYCHOTHERAPY.

MERCURY ARC LIGHT. See ELECTRIC LIGHTING.

MERRY, WILLIAM LAWRENCE. An American diplomat, died December 14, 1911. He was born in New York in 1842 and received an academic education. He went to sea and in time became commodore of steamships on the Atlantic and Pacific oceans in the California trade. In 1874 he resigned from the Pacific Mail Steamship Company and took up his residence in San Francisco. He was for three years general agent of the Central American Transit Company and the North American Steamship Company. In 1897 he was appointed consul-general for Nicaragua on the Pacific coast of the United States. He served as United States minister to Nicaragua, Salvador, and Costa Rica from 1897 to 1907. In 1907-8 he was minister to Nicaragua and Costa Rica, and from 1908 to 1911 minister to Costa Rica. He was the author of *The Nicaragua Canal, the Gateway Between the Oceans*; and *The Problem of Cheap Transportation*. He also wrote many papers on the same subjects.

MESOPOTAMIA. See ARCHÆOLOGY and IRRIGATION.

MESSINA. See EARTHQUAKES; and ITALY, *History*.

METALS. See CHEMISTRY, INDUSTRIAL.

METAPHYSICS. See PHILOSOPHY.

METEOROLOGY. The summer of 1911 was characterized by extreme dryness and heat in many parts of the world. In the northeastern United States the deficiency in precipitation during the spring and summer, and the prolonged hot spell from the beginning of July, caused great uneasiness in many localities on account of the consequent depletion of the water supply. In the British Isles and on the Continent of Europe, exceptional weather conditions were also recorded, the average temperature for the year being several degrees above the normal.

ORIGIN OF THE PERMANENT OCEAN HIGHS. Prof. W. J. Humphreys, in the *Bulletin of the Mount Weather Observatory*, gave an explanation of the permanent high-pressure regions on the oceans. There are five of these regions, which, while varying in intensity, remain substantially fixed in position throughout the year. Two of them lie about 35° to the north, and the other three about 32° to the south of

the equator. Of the two situated in the Pacific Ocean, one lies just west of southern California and the other near the coast of Chile; two are over the Atlantic Ocean, near Morocco and the Cape of Good Hope, respectively; and the fifth is in the Indian Ocean, about midway between the Cape and Australia. These ocean highs are extremely important on account of the close connection between their locations and intensities and the weather of the adjacent continents. Several explanations of their origin have been given, but none of them accounts fully for the observed facts. Professor Humphreys showed that the presence of the high-pressure belts could be accounted for by considering merely the temperature conditions and the rotation of the earth. These combined give rise to winds having a strong easterly component between the limits 30° N. and 30° S., while outside this zone the winds would have a decided westerly component. To the opposing thrusts of these eastward and westward winds is due the high-pressure belts north and south of the equator as well as the equatorial belt of comparative calm. Irregularities in intensity are then impressed upon the high-pressure belts by the cold ocean currents which cross them in various places and by virtue of their cooling effect, give rise to an increase of pressure somewhat to the westward. Thus the three highs of the southern hemisphere are due to the three branches of the great Antarctic Current known as the Peru, the Benguela, and the West Australian currents.

In the same way Professor Humphreys explained the Aleutian and Icelandic lows as due to the warm currents known as the Kuroshio, or Japan Current, and the Gulf Stream.

THE AURORA. The radiation producing the aurora borealis was the subject of a communication by Mr. Végard of Copenhagen. Starting with Birkeland's hypothesis that the aurora borealis and magnetic disturbances are due to an electric radiation coming from the sun, he put forward the suggestion that the phenomena of the auroral draperies could be adequately accounted for by supposing that the radiations were α rays or atomic rays of a similar nature, capable of penetrating matter along nearly straight paths, whereas the auroral arch might be due to β rays, the penetrating power of which is only slight in comparison with that of the α rays.

THE CLIMATE OF CITIES. It has been frequently asserted that the artificial heating of cities has materially changed their climates. Mr. R. P. Bolton, president of the American Society of Heating and Ventilating Engineers, claimed that the rapidly increasing consumption of fuel has lessened the number of days with a temperature as low as or lower than zero, has produced a progressive decrease in precipitation particularly in the winter months, and has lowered the relative humidity of the air over the city by 7 per cent. His statements were traversed by Messrs. Mindling and Palmer, who made an exhaustive examination of the meteorological data for the cities of New York and Boston for the past forty years and found little support for his contention.

BOOKS. Among the more important works published during 1911 may be mentioned, Shaw, *Forecasting Weather*, and the work of Bjerknes and others on meteorology and hydrography.

METALLURGY. Progress was to be noted in many branches of the mineral industry during 1911, and the following paragraphs are based in large part on reviews by leading mining engineers and metallurgists in the annual summary prepared by the *Engineering and Mining Journal* (New York). Naturally scientific and economic interest centred in the development of electro-metallurgical processes and their application to the iron and steel industry.

GOLD AND SILVER. The cyanidation process for gold extraction was being extended in many fields, and during the year became widespread in Colorado, it being stated that but one chlorination plant remained, and that was closed in November. Special metallurgical processes were being developed to treat various refractory and low-grade ores in Colorado and elsewhere, and at the Alaska-Treadwell mine on Douglas Island, Alaska, cyanidation was introduced after a costly experimental test of the availability of the process to this great plant. The concentrates, which once were sent to Tacoma, Wash., by steamer for smelting, were being cyanided at the mill, and a saving of \$6.22 per ton was reported. A system of amalgamating gold ores by electrolysis also found successful application during the year. See **GOLD AND SILVER**.

IRON AND STEEL. Improvements were made in the application of the dry blast for the blast furnace in the way of eliminating the heavy expense for the refrigerating plant for drying the air. In a Welsh blast furnace ammonia was used in place of brine, and at a Luxemburg plant the air was dried by passing over calcium chloride without the use of refrigeration, at all. The calcium chloride was subsequently dried by the heat of the flue gases from the boilers and hot-blast stoves. Turbine-blowing engines were introduced at several American blast furnaces during the year, and various turbine improvements involving the economical use of waste steel were applied.

Blast furnace gas was used more extensively in gas engines, and for burning in the coke oven flues, so that a certain proportion of the richer coke oven gas could be used in open-hearth annealing, and other furnace work, and by mixing with blast furnace gas it could be used with great economy. An important German invention was a form of construction for open-hearth furnaces that involved the removal and replacement of the ports in a few hours, instead of putting the furnace out of commission, as was previously the case, for these openings—subject to intense heat—were apt to change in size and form and thus interfere with the efficiency and uniformity of the process.

A blast roasting process invented by Arthur S. Dwight, and used with considerable success on non-ferrous ores during the year, was applied to the sintering of iron ore, and formed the subject of an interesting paper presented to the American Institute of Mining Engineers. The Dwight-Lloyd method was worked out for iron ores, with the cooperation of James Gayley, the inventor of the dry-blast process and other improvements in connection with the manufacture of pig iron. The sintering process involves the formation of cellular lumps as a furnace charge containing sufficient coke dust to secure an economical operation of the furnace without the formation of flue dust. The Baker process of ore agglomeration was also

announced during the year, as well as the Weiss process of a German metallurgist.

During the year a new and improved plant was constructed to use the Jones process of treating iron and non-ferrous ores without the aid of the blast furnace. In this process the iron ores are not fused, but are subjected to a heat treatment by which the oxides are metalized in a reducing atmosphere. It was stated that the product was 97 per cent. pure iron, which could be used direct in an open-hearth furnace, or even for melting in an ordinary foundry.

ELECTRO-METALLURGY. During 1911 tool steels of special lines were being made in the electric furnace with great advantage, and it was also being used to refine ordinary grades of steel and to manufacture steel castings. The more important types of furnace in use were the Héroult, Stassano, and Girod, of the arc type, and the Kjellin and Frick induction furnaces. A combination induction furnace was the Röchling-Rodenhauser. This furnace had a large central open hearth for refining, with side channels which surround the limbs of the transformer. Among the new types of electric furnaces was one of the resistor type, invented by Hering. Much larger furnaces of the Hiorth type were designed as the result of their successful use in Norway. Another new type of furnace which was successfully operated was the Groenwall.

The general tendency in the design of all electric furnaces was to increase the size and to consider carefully the scientific process involved in the construction. By using electrodes where the various sections were connected by screw joints economies in the material were secured. Electric smelting requires much less carbon than does the blast furnace, where coal must be used for fuel, so that the process is particularly applicable in a country where coal is scarce, as in Sweden. Here active work was in progress and a notable advance was the new plant of the Swedish Association of Ironmasters at Trollhattan. This furnace was first started in November, 1910, and was in continuous operation from August 4, 1911. The consumption of electricity was said to be 1736 kilowatt hours per ton of iron, or 5.05 tons of pig iron were produced per kilowatt year.

The development of electric methods in the United States, Germany, and Great Britain during 1911 made considerable progress in view of the great expense involved in the installation of machinery and the general condition of the industry during the year. The most marked tendency was in the use of electric methods for super-refining and the production of special steels, but in one German plant it is reported that ingots were regularly produced in the electric furnace complete from pig iron to finished steel, and this is also done in the Evans-Stansfield process.

It was reported that in June, 1910, there were in operation 29 Héroult furnaces, with a capacity of 80 tons, and furnaces with a capacity of 50 tons were in course of erection. In September, 1911, 43 furnaces, with a total capacity of 240 tons, were reported. In 1910 the output of electric steel in the United States, Germany, Austria, and Hungary amounted to about 112,000 tons, or an increase of 63,000 tons over 1909.

The progress of electric refining process in the United States was shown by the fact that in 1910 50,000 tons of electric steel were pro-

duced, and practically all of this was made by purification in the Bessemer or open-hearth furnace, and then further refined in electric furnaces. At the Homestead steel works two graphite electrodes were added to an open-hearth furnace, so that after the usual purification process has been ended, the heat effects of the electric arc could be availed of and the super-refining take place. This, of course, obviated the transfer of material from one furnace to another, and the arrangement was virtually that of the Héroult steel furnace. Another American development was the installation of an electrically heated furnace for heating steel previous to forging. This prevented the loss of material by oxidation, as with an electric furnace the steel could be heated in an unoxidizing atmosphere. This particular furnace possesses the further advantage than it can be used for annealing with a nicety of temperature regulation.

During 1911 a more serious attempt was made in Great Britain to install electric furnaces, and the output for the year was estimated at about 13,000 tons.

It was reported that in addition to considerable experimental work a Sheffield firm of steel makers had installed a double-ended Bessemer converter for treating the molten metal which had been purified by the old Bessemer process, and which could be run from one end to the other. It was stated that it was possible to make steel equal to the best ever produced in Sheffield in the electric furnace, at less cost than it could be done in the crucible.

COPPER. A new process for the hydro-metallurgical treatment of copper, invented by Charles S. Bradley, developed on an experimental scale at Bayonne, N. J., was taken up by the Copper Extraction Process Company in a plant under erection at Anaconda, Mont. In this process the metals in copper ores, after being roasted, are dissolved by the use of a chlorine compound in which certain waste products, such as calcium sulphate, are rendered insoluble, while cupric chloride, ferric chloride, and other chlorous or chloric compounds are formed, from which the metals are readily recovered. Gold, silver, and zinc are also separated in this process, which, while apparently complicated, in actual operation was said to be simple and efficient. Copper matte ores during 1911 were being treated more than ever in basic-lined instead of acid-lined converters, not only in the United States, but in Canada, Peru, Chile, and Russia, where magnesite-brick was substituted for the acid or silicious lining material previously employed. This not only gives an increased life for the converter, but a higher efficiency.

ZINC. In the metallurgy of zinc, improvements of processes were in the nature of detail rather than of a radical character, and no important changes were recorded in the practice at the best European smelters. The concentration of zinc ore by burning off the zinc, somewhat as is done by the Wetherell process of zinc oxide manufacturing, was the subject of a number of experiments, especially in Germany. This process of pyro-metallurgical concentration was thought to have some application in the treatment of ores and products that could not be concentrated mechanically. Special apparatus in small experimental plants were working these different processes and their modifications in order to develop a satisfactory method.

In many parts of the United States the treatment of zinc ores was facilitated by the availability of natural gas. The failure of this supply in certain parts of the country has occasioned the firing of furnaces with petroleum. The various types of furnaces used in the United States and Europe continued the same during the year. A mechanical reversing regenerative furnace of a new design was that of Dor-Delatré, used in Europe, which cuts down the consumption of heating coal to a lower figure than in previous furnaces of this nature. In European zinc-smelting practice higher temperatures were being employed than in the United States, and this naturally leads to more substantial furnace construction on the Continent than in America.

It was reported that the smelting of zinc ore on a commercial basis had been accomplished at Särpsborg and Trollhattan, in Scandinavia, after a series of experiments which extended over a period of five or six years. At Särpsborg the De Laval arc furnaces were employed, but at Trollhattan resistance furnaces were being used which were more economical than the older form. With an improved process, and with the low-cost power available in Scandinavia, it seemed to be commercially successful, but the difficulties in securing a single and continuous process had not been met by 1911. Numerous electric zinc-smelting experiments were conducted during the year by W. McA. Johnson at Hartford, Conn., and at the experimental plant of Imbert-Thompson-Fitzgerald at Hohenlohehütte, Silesia, and elsewhere. It was the general opinion, however, that much remained to be done in the development of a successful electro-metallurgical process of zinc smelting, and that the art was in its earliest stages.

LEAD. The Dwight-Lloyd sintering process found a permanent application in the metallurgy of lead in 1911. This is in connection with blast roasting, which has largely supplanted other methods of roasting in hand and mechanical reverberatory furnaces. It was found possible to treat not only galena concentrates, but various other lead ores, and this process is also used with fine sulphide copper ores and flue dust to prepare them for the blast furnace. By blast roasting the fine ores are collected so as to render them capable of treatment in the blast furnace, and in connection with the treatment of various copper lead ores the saving of the lead was receiving increasing attention. An electric precipitation process, invented by F. G. Cottrell, was used during the year at the Selby lead works near San Francisco, and at Coram, Cal.

BESSEMER LABORATORY. During the year there was completed the Bessemer laboratory, formerly a part of the new Royal School of Mines building in London. This is a large low, glass-covered building between the metallurgical and mining class and lecture rooms, and the new mining laboratory. Its maximum length is 250 feet, and its width 121 feet. Most of the machinery is of large size, and is arranged to demonstrate the usual processes of crushing, sampling, concentrating, magnetic separating, cyaniding, chlorinating, pan-amalgamating, etc., with plants for studying the rotation process of separation, and the drying, roasting, and smelting of ores. The machinery is electrically driven, and the entire installation, containing, as it does, the full equipment of a

plant necessary for the treatment of gold, tin, copper, and other non-ferrous ores, is one that will undoubtedly prove of the greatest advantage to students of mechanical engineering.

METHODIST EPISCOPAL CHURCH

The total number of communicants in all conferences of the Methodist Episcopal Church, including churches in the United States, was in 1911, 3,520,197. Of these 3,198,644 were full members and 321,553 probationers. The ministers numbered 20,569 and the churches 30,398. In the Sunday schools of the denomination were 3,567,548 scholars and 374,881 officers and teachers. The church property was valued at \$183,542,603. The receipts from all the conferences of the denomination from November, 1910, to October 31, 1911, amounted to \$1,072,997. The foreign conferences of the denomination include missions in China, Korea, India, Malaysia, Philippine Islands, Africa, South America, Mexico, and nearly all the countries of Europe. The missionary work of the denomination is carried on by the general committee of foreign missions. Its publication departments are the Methodist Book Concern and the Western Book Concern. The denomination has wide educational interests, and these are conducted by the board of education. The receipts for purposes connected with education in 1911 amounted to \$1,753,000. Under the auspices of the denomination are 25 colleges and universities for white students and 8 for colored students. Many theological seminaries are also maintained for white and colored students. Among other bodies which carry on the work of the denomination are the Freedmen's Aid Society, the Epworth League, the Methodist Brotherhood, the Knights of Methodism, and the Methodist Federation for Social Service. The women of the church also carry on important home and foreign missionary work. The church maintains many benevolent institutions throughout the country.

ECUMENICAL CONFERENCE. The fourth Ecumenical Conference of the denomination was held in the Metropolitan Methodist Church in Toronto, Canada, October 14-17, 1911. There were in attendance 500 delegates. The conference included churches under the Methodist polity, twenty-one in all. Among the general topics considered at the conference were *Ecumenical Methodism*, *The Study of the Scriptures*, *The Church and Modern Life*, *The Church in the Household*, *The Church and Education*, and *The Relation Between the Methodist Churches*. The conference adopted resolutions approving the pending treaty for international arbitration.

METHODIST EPISCOPAL CHURCH,

SOUTH. This body, which includes the greater number of the Methodists in the Southern States, had, in 1911, 1,337,108 members, 15,980 local preachers, and 7877 traveling preachers. The Sunday schools numbered 4584, with 142,724 scholars.

METHODISTS, COLORED. The colored churches under the Methodist form of church government included the Colored Methodist Episcopal Church, with 233,911 members, 2863 preachers, and 2809 churches; Zion Union Apostolic Church, 3059 communicants, 49 churches and 33 ministers; African Methodist Episcopal Church, with 853,000 members, 6920 churches, and 6170 ministers; Union American Methodist Episcopal Church, Colored, 18,500 members, 138 ministers, and 255 churches.

There are also several smaller bodies, chiefly local.

METRIC SYSTEM. During the year 1912 considerable progress was made with the movement for the extended use of the international metric system of weights and measures, and a number of small countries, Nicaragua, Honduras, Costa Rica, Salvador, and Guatemala, all passed the necessary legislation to enforce the use of the metric system as from January 1, 1912. In Bosnia and Herzegovina an act making the system compulsory, to take effect from September 1, 1912, was passed. In Denmark the optional use of the system had extended so that everything was in readiness for the compulsory use of the international weights and measures, which was scheduled to occur on April 1, 1912. The king of Siam ordered the adoption of the metric system on November 15, 1911. The government was to arrange with the International Bureau of Weights and Measures for national standards and a law was to be enacted calling for the compulsory use of the metric system after a year of optional use.

METROPOLITAN MUSEUM. See GIFTS AND BEQUESTS.

MEXICO. A republic between the United States and Central America. Capital, Mexico.

AREA AND POPULATION. The republic consists of twenty-seven states, four territories, and the federal district. The total area is stated at 1,987,201 square kilometers (767,258 square miles). The population in 1900 was 13,607,259; of these, 43 per cent. were mestizo, 38 per cent. Indian, and 19 per cent. white. Foreigners numbered 57,508, of whom 15,265 were Americans and 16,258 Spaniards. The population by groups of states was: North, 1,174,341; central, 6,239,038; Gulf, 1,756,006; Pacific, 4,437,874. The census of October 27, 1910, showed a total of 15,063,207 inhabitants. The area, population, and density per square kilometer of some of the states (including those that have figured more especially in the recent revolutionary movements) are as follows:

States	Sq. kil.	Pop.	Density
Federal District	1,499	719,052	480
Chihuahua	233,094	405,265	1.7
Coahuila	165,099	267,652	2.2
Durango	109,495	436,147	4.0
Guanajuato	28,363	1,075,270	38.0
Guerrero	64,756	605,437	9.0
Hidalgo	22,215	641,895	29.0
Jalisco	86,752	1,202,802	14.0
Mexico	23,185	975,019	42.0
Michoacán	58,594	991,649	17.0
Nuevo León	61,343	368,929	6.0
Oaxaca	91,664	1,041,035	11.0
Puebla	31,616	1,092,456	35.0
San Luis Potosí	62,177	624,748	10.0
Sonora	198,496	262,545	1.3
Veracruz	75,863	1,124,368	15.0
Yucantan	42,751	337,020	8.0

The larger cities, with population (1910 census), are: Mexico, 470,659; Guadalajara, 118,799; Puebla, 101,214; San Luis Potosí, 82,949; Monterey, 81,006; Mérida, 61,999; León, 57,334; Veracruz, 45,021; Aguascalientes, 44,800; Morelia, 39,160; Chihuahua, 39,061; Pachuca, 38,620; Oaxaca, 37,469; Orizaba, 36,189; Tacubaya, 35,830; Guanajuato, 35,147; Querétaro, 35,011. In 1905 there were 57,881 marriages, 487,268 births, and 473,403 deaths; in 1906, 56,339, 460,190, and 478,857, respectively.

EDUCATION. Primary instruction is free and

nominally compulsory. The latest official figures available are for 1906. They show 8451 elementary schools (primary), with 542,539 pupils; 354 elementary schools (superior), with 51,789 pupils; 38 secondary and collegiate schools, with 4581 students; 66 professional schools, with 8734. In addition, there were 2562 private, clerical, and association schools, with a total enrollment of 163,020.

INDUSTRIES. In Mexico mining is of pre-eminent importance. Except in a zone fifty miles wide along the border, the mining laws do not discriminate against the foreigner, and large amounts of foreign capital, particularly American, have been invested in mineral exploitation. The following values of production are for the year ended June 30, 1910: Silver, 76,405,754 pesos; gold, 47,428,842; copper, 26,172,214; lead, 6,808,465; zinc, 1,150,558. In proportion to the country's capabilities, the agricultural production is small, though the annual value of agricultural products and cattle marketed is estimated at over 400,000,000 pesos. The leading crops include corn, cotton, henequen, wheat, sugar-cane, coffee, and beans. The principal manufactures are cotton textiles, tobacco goods, sugar, and spirits. In the year ended June 30, 1909, the mill consumption of raw cotton was 35,434,639 kilos and the output, 13,887,911 bolts of piece goods and prints, and 1,952,612 kilos of yarn. Cotton factories numbered 146 (of which 17 were idle), with 726,278 spindles, 25,327 looms, and 14 print machines. There are manufactures of other textiles and of paper, iron, soap, beer, etc.

COMMERCE. For fiscal years ended June 30 the values of imports and exports have been as follows, in pesos:

	1909	1910	1911
Imports	156,533,000	194,858,000	205,836,000
Exports	231,102,000	260,056,000	293,752,000

Of the imports, iron and steel manufactures, exclusive of machinery, are first in value, while machinery is second. Other leading imports are grain and other foodstuffs, chemicals, earthenware, cotton textiles, alcoholic liquors, vehicles, and woolen manufactures. The following figures show, in thousands of pesos, the values of leading exports in the fiscal years 1910 and 1911, respectively: Silver 76,349 and 80,868; gold, 42,636 and 62,091; copper, 26,171 and 26,300; henequen, 22,096 and 25,065; rubber, 16,760 and 21,188; guayule, 9468 and 11,798; hides, 12,743 and 10,850; coffee, 8007 and 8624; lead, 6808 and 6539; live animals, 5715 and 4799; hicle, 2447 and 3745; woods, 2501 and 3439; ittle, 3091 and 3191; chick peas, 3127 and 3079; vanilla, 1577 and 2630; zacatón root (for brooms and brushes), 2734 and 2361; antimony, 2187 and 2047. Imports and exports by countries, in thousands of pesos:

	Imports		Exports	
	1910	1911	1910	1911
United States	112,878	113,089	196,979	224,497
Germany	20,165	25,562	8,445	8,708
Great Britain	22,252	23,980	28,535	35,882
France	17,494	18,673	12,284	9,310
Spain	5,280	5,682	1,934	1,958
Belgium	2,462	4,313	6,689	7,362
Italy	1,034	2,377	222	165
Austria-Hungary	2,187	2,187	54	54
Other	13,293	9,973	4,966	5,816
Total	194,858	205,836	260,056	293,752

SHIPPING. In the fiscal year 1910 there entered 1280 vessels, of 3,802,646 tons (steam 1258, of 3,669,216) and cleared 1793, of 3,923,465 tons (steam, 1271, of 3,782,575 tons). The merchant marine in 1911 consisted of 32 steamers, of 16,648 tons net, and 50 sailing vessels of 8712 tons.

COMMUNICATIONS. In presidential messages of September 16 the total length of Mexican railways has been stated as follows: 1909, 24,161 kilometers; 1910, 24,559; 1911, 24,717 (15,358 miles). Of the total in 1911, 19,877 kilometers were government-controlled and 4840 privately controlled; of the government-controlled lines, over 14,000 kilometers are controlled by the federal government and the remainder by state governments. The national railways of Mexico were reported as having under construction in 1911 branches aggregating over 400 miles in length. Federal telegraph lines in 1911, 74,890 kilometers, with 526 offices; other lines, 8387 kilometers; total, 83,286 kilometers. The federal telephone system had about 47,700 kilometers of wire in 1910, with some 13,000 stations. Post offices in 1911, 2858; pieces of mail matter handled, 152,755,942 domestic and 48,905,426 foreign; postal receipts in the fiscal year were 4,700,010 pesos, and expenditures 5,231,893.

FINANCE The unit of value is the silver dollar, or peso, whose value is legally fixed at 0.75 gram of pure gold, or 49.8 cents. For the fiscal year 1908-9 ordinary revenue amounted to 98,775,510 pesos, ordinary expenditure 92,967,393, and extraordinary expenditure 11,437,788. The budget of 1910-11 showed estimated revenue and expenditure of 107,918,000 and 102,294,030 pesos, respectively; budget of 1911-12, 110,070,100 and 105,432,347, respectively. For the latter year customs receipts were estimated at 54,476,000 pesos, internal revenue and stamps 41,715,000, and receipts from posts and telegraphs 8,243,500. Distribution of the estimated expenditure for 1911-12: Finance and public debt, 35,071,542 pesos; war and marine, 21,307,409; communications, 16,051,157; interior, 15,115,941; public instruction, 7,773,282; fomento, 4,092,770; foreign affairs, 2,075,446; justice, 1,626,355; the legislative, 1,503,255; the supreme court, 625,411; the executive, 259,749. Public debt on June 30, 1911: External, 300,950,996 pesos; internal, 137,849,135 (the charges on both amounting to 26,251,267 pesos); non-consolidated, 273,399; total debt, 439,073,530 pesos.

NAVY. Mexico has a few small war vessels, none of them of any considerable fighting value. They included, in 1911, two gunboats (built in 1903), of 1000 tons each; 2 gunboats (1904), of 1200 tons each; 1 small cruiser (1909), of 1830 tons; 1 transport, 2 corvettes, 3 dispatch boats, and several small vessels which for efficiency in war are quite negligible.

ARMY. The Mexican army at the beginning of the year 1911 consisted of 28,515 men, of whom 2385 were officers and 26,130 composed the rank and file. The officers comprised 7 divisional generals, 41 generals commanding brigades, 55 brigadier-generals who might command battalions, regiments, or brigades; 511 superior officers, and 1771 subaltern officers. The division of arms of the service was as follows: Infantry, 17,080; cavalry, 5800; artillery, 1550; other arms and departments, 1700. The scheme of organization of the Mexican army

provided that the force could be increased by a demand on the governors of the various states. On a theoretical basis a war strength of about 84,500 was thought to be available, though by many the actual effective was considered not much greater than 50,000. For military purposes the republic was divided into ten districts and three commands, besides the independent command at Tepic. In the federal district there was a concentration of troops to maintain order, and here were assembled all the artillery, the battalion of engineers, 6 battalions of infantry, 5 regiments of cavalry, a squadron of military gendarmerie, and a squadron of presidential guards. The organization of the infantry involved 34 battalions of 4 companies, each comprising 8 officers and 140 men, in addition to 2 local companies from Lower California. The cavalry consisted of 18 regiments of 4 squadrons each, 1 squadron of presidential guards, 1 squadron of military gendarmes, 4 cadres of regiments of 2 auxiliary companies at Puebla, and in Sonora 1 squadron to act as escort for the commission of exploration. There were in addition 20 sections of rural troops of 100 men each. The artillery included 4 regiments of 4 6-gun batteries, including 1 field and 1 mountain battery. There were also a mounted detachment of 2 batteries armed with quick-firing small calibre guns to accompany the cavalry, 1 company armed with 12 machine guns, and 2 companies of heavy artillery, 3 sections of coast artillery, and 1 squadron of artillery transport. Internal conditions in Mexico during the year 1911 led to a certain amount of disorganization of the standing army, which will be found discussed below in section *History*.

On November 24, 1911, President Madero signed a provisional decree in pursuance of the law which established a compulsory military service. This decree provided active service of two years from the age of eighteen years, and fixed the annual contingent at one in every thousand, or about 15,000 men. The recruits will be obtained by lot, and the first selection was scheduled for January 1, 1912. These reforms in the recruitment of the army were considered very far reaching, and they placed the Indians on the same footing as the descendants of the Spanish.

GOVERNMENT. Mexico is a federal republic, consisting of states autonomous in local affairs, but bound together by the constitution and fundamental laws. Under the constitution the chief executive is a president, elected indirectly for six years, and assisted by a cabinet of eight members. The legislative power rests with a congress of two houses, the Senate (56 members elected indirectly, two for the federal district and each state) and the Chamber of Deputies (233 members also elected indirectly). Gen. Porfirio Diaz (q. v.) was president from 1877 to 1880 and from 1884 to 1911. On November 30, 1910, he was inaugurated for his eighth term (with Ramón Corral as vice-president). The revolution then under way, headed by Francisco I. Madero (q. v.), gathered force, and on May 25, 1911, Diaz resigned the presidency. The vice-president and cabinet also retired; but the secretary for foreign affairs, Francisco León de la Barra, who had been appointed to that portfolio on March 27, after being recalled from the post of ambassador at Washington, became acting pres-

ident under constitutional provision. A presidential election took place on October 1, when the electors for Francisco I. Madero as president were chosen by about ninety-five per cent. of the total vote, and for José Marino Pino Suárez as vice-president by about thirty per cent. of the votes cast. On October 15 the electoral college chose Madero and Suárez. Señor de la Barra resigned on November 4; Madero was inaugurated on the 6th, and Suárez on the 23d. Madero appointed the following cabinet: Secretary for foreign affairs, Manuel Calero; interior, Abraham González; justice, Manuel Vázquez Tagle; public instruction and fine arts, Manuel Díaz Lombardo; fomento, colonization, and industry, Señor Hernández; communications and public works, Manuel Bonilla; finance and public credit, Ernesto Madero; war and marine, Gen. José González Salas.

HISTORY

GENERAL CAUSES OF THE REVOLUTION. It was generally admitted that at the close of the Díaz administration, his government was as bitterly hated as ever the old régime was in France before the revolution, and it was charged that its abuses were nearly as great. When he first assumed his dictatorial powers, even his enemies thought he was justified, but it was not necessary to continue an autocracy which had degenerated into a kind of oligarchy. The progress of the country had been purely material. There had been no advance in methods of government. The president was surrounded by a group of politicians popularly called *Científicos*, because they were said to be trying to govern on scientific principles. They represented the large economic interests of the country, and to offset the corruption of their government they could point to many public improvements of a material sort. Their constant argument was that business prosperity wholly depended on the continuance of General Díaz in the presidency. They prevented any true expression of public opinion at the polls. The chief impetus to the Madero uprising was the corrupt government in the states and local divisions, where the autocracy had resulted in official abuses and extortions. His ranks were recruited by men with actual grievances, including many small land owners whose property had been confiscated, and by people who felt the heavy burden of taxation.

THE OUTBREAK OF THE REVOLUTION. During the election of 1910, popular discontent was aroused by the suppression of Francisco Madero's candidacy for the presidency, and in November there were uprisings of the Maderistas in Chihuahua and Durango. During the closing weeks of 1910 the revolution had, as recorded in the last YEAR BOOK, made considerable headway. In January, 1911, the insurgents were plainly gaining ground and government reverses were reported at San Ignacio and Galeana. Reinforcements were sent to the United States troops already on the border to preserve neutrality. By February well-organized forces of the revolutionists were in the field and the government, although it had a considerable body of troops at its disposal, was obliged to scatter them so widely that they made but little impression on the enemy. Early in March the Mexican revolutionists were threatening the cities of Chihuahua and Juárez. Uprisings were reported in Vera-

cruz and Oaxaca in the south, and Madero declared that he would not lay down his arms until President Díaz had resigned, and he was assured of a free and unintimidated suffrage. The latter was inclined at first to make light of the revolution and referred to it repeatedly in contemptuous terms. But in addressing Congress on April 1, he outlined many reforms, among which was the safeguarding of the suffrage, reform of the federal judiciary, removal of certain abuses upon the part of local officials, the division of the large estates to allay the discontent with the existing land laws, and the provision that the president should not succeed himself. The cabinet was reconstructed, new men taking the places of the *Científicos*: General Reyes, who had been banished, was urged to return; Señor de la Barra, ambassador to the United States, was recalled, and became secretary for foreign affairs; and negotiations were opened with Madero, who had been declared by the revolutionists provisional president.

These concessions, however, came too late. By this time several of the southern states were in revolt, and Yucatan, Campeche, and Guerrero were overrun by raiders. The nucleus of a revolutionary government had been formed, the Maderistas were confident of success, and there appeared to be a popular demand for the retirement of President Díaz.

MOBILIZATION OF AMERICAN TROOPS. On account of the revolution in Mexico American forces on the border were strengthened early in February, and on March 7 over 20,000 men were gathered at San Antonio and other points and four fast cruisers were dispatched to Galveston. It was announced that this mobilization was for the purpose of field exercises, but it developed that the government wished to guarantee American neutrality and protect American interests if necessary. The presence of American troops caused anxiety to the Mexican government, and friction arose over the capture by Mexicans of two Americans, whose surrender the United States State Department demanded on the ground that they had been captured on American soil. The Mexican government refused, saying that they were insurgents and had been taken on Mexican soil. Several Americans were killed or wounded in April at Agua Prieta and at Douglas, Ariz., by stray bullets, whereupon the American government gave warning to both the federalists and the insurgents that battles must not be fought so near the American line as to endanger lives and property of Americans. It was reported in Mexico and elsewhere that the United States intended to interfere, but on May 12 the secretary of state, Mr. Knox, through the American ambassador, denied positively all such "foolish stories." The Mexican president, meanwhile set free the three Americans he had seized on the charge of aiding the insurrection. In June there was much complaint in the Mexican press of the laxity of American authorities in not punishing the lynching of a Mexican boy by a mob at Thorndale, Tex. Much damage was done during the war to American property and over 500 claims against Mexico were filed with the State Department.

THE SUCCESS OF MADERO. On May 3, peace negotiations began at Ciudad Juárez between the representatives of Díaz and Madero, but they were suspended on May 6 and the war

went on. The revolt extended even to Mexico City and by May 10 the rebels had captured Juárez. Peace negotiations were resumed. General Madero agreed to the government's proposal that President Diaz and Vice-President Corral should immediately resign and Señor de la Barra should be president ad interim, with a cabinet chosen upon consultation with Madero, and that free elections should be held within six months. On May 18 peace was proclaimed, and a week later General Diaz resigned, and, going secretly to Veracruz, took ship for Spain. Señor de la Barra showed ability and tact in restoring order in the republic. There was occasional fighting between the revolutionists and federalists in July. The new arrangement was not accepted by Lower California until June. In that month a decree for special presidential elections was issued and appointed them for October 1, each state and territory to choose six electors, who in turn were to select a successor to General Diaz on October 15. The candidates in the October election were Gen. Francisco Madero, who had been nominated by the Constitutional Progressives in August, and Gen. Bernardo Reyes, but the latter, finding his election hopeless, withdrew from the contest and left the country. Señor Pino Suárez was chosen vice-president. There was occasional fighting in October between the Zapatists (followers of the rebel leader Zapata) and the federalists. General Madero entered the capital in triumph on June 7. Early in the morning of that day a severe earthquake occurred, wrecking buildings between the barracks and killing fifty or sixty persons. It was most severe in the western part of the city, but it had the unusual effect of causing the walls to fall outward instead of inward, in many cases leaving the inmates of the houses unhurt. The electric power plants were stopped, leaving the city in darkness. Madero drove through the city to his father's house amid the cheering of the crowd.

THE MADERO GOVERNMENT. On the whole, the condition of the country became more stable after the triumph of Madero, but there were frequent disturbances. A riot occurred early in July, in which eight persons were killed and fifteen wounded at Oaxaca, but it was soon put down. In July an encounter took place between the federal troops and Maderistas near Puebla, in which it was said that forty persons were killed. Some alarm was occasioned by the report that Madero's troops were unwilling to lay down their arms unless they received a certain compensation larger than they had been already receiving. Four troops of cavalry were ordered to the frontier by the United States War Department on account of the rumors of disturbances. The Mexican congress met on September 15. The chief feature of Madero's programme was constitutional government and no reelection of the president or other officials. The elections passed off peaceably, and General Madero was chosen president, his rival, General Reyes, having withdrawn from the contest. On November 6 Madero was installed as president and his new cabinet assumed office. Early in October there were some conflicts between the federal troops and the rebel leader, Zapata. On October 7 a fight was reported in which 1500 of the followers of Zapata were repulsed. A more serious engagement took place between the government forces and

the rebels at Tepoxtin, 200 rebels being killed and many others wounded, and all captured, while the government loss was 170 killed and wounded. General Reyes was arrested by United States officials at San Antonio, Tex., on November 18, on the charge of violating the neutrality laws, but was released on bail. Thereupon he returned to Mexico and tried to raise an army, but failing to find support surrendered to the Madero government (December 25). At the close of the year conditions in the republic continued to be very disturbed. See **MADERO, FRANCISCO.**

MIAMI UNIVERSITY. An institution of higher learning at Oxford, Ohio, founded in 1809. The total number of students enrolled in 1911-12 was 1072, distributed as follows: College of arts and sciences, 349; normal college, 198; summer term, 525. The faculty numbered 53. During the year Guy Potter Benton resigned the presidency to accept that of the University of Vermont, and Dean R. M. Hughes was appointed acting president for the year. The university has been made the residuary legatee of William B. Wells of St. Louis and will probably realize about \$60,000 from his estate. The productive funds amounted to \$108,000 and the income to \$200,000, chiefly from the State. During the year a new dormitory for women was completed and furnished at a cost of \$90,000. Dr. Scott E. W. Bedford, professor of sociology, resigned to accept an appointment at the University of Chicago, and Dr. Paul L. Vogt of the department of economics in the State College of Washington was appointed to fill his place. The library contains about 30,000 volumes.

MICHIGAN, POPULATION. The Thirteenth Census, taken in 1910, showed a population for that year of 2,810,173 as compared with 2,420,982 in 1900, an increase of 389,191 or 16.1 per cent. for the decade. The principal cities with their population in 1910 and 1900 were as follows (the figures in parentheses are for 1900): Detroit, 465,766 (285,704); Grand Rapids, 112,571 (87,565); Lansing, 31,229 (16,485); Jackson, 31,433 (25,180); Saginaw, 50,510 (42,345).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. According to these statistics the number of farms in the State in 1910 was 206,960 as compared with 203,261 in 1900. The land in farms amounted to 18,940,614 acres and the improved land in farms to 12,832,078 acres. The average per farm was 91.5 acres. The value of farm property, including land, buildings, implements, and machinery, domestic animals, poultry, and bees, was \$1,088,858,379, as compared with a value in 1900 of \$690,355,734. The average value of all property per farm was \$5261, as compared with a value in 1900 of \$3396. The average value of land per acre was \$32.48, as compared with a value in 1900 of \$24.12. Of the 206,960 farms in the State in 1910, 174,271 were operated by owners and managers, and 32,689 by tenants. Of the farms operated by owners, those free from mortgage numbered 88,705; mortgaged, 82,631. Of those operating and managing farms 147,790 were native whites, 52,224 were foreign-born whites, and 946 were negroes and other non-whites. The value of the various kinds of domestic animals and poultry and bees in 1910 was \$137,803,795, as compared with



GENERAL PORFIRIO DIAZ
Resigned as President in 1911



Courtesy of the *Review of Reviews*
GENERAL FRANCISCO I. MADERO
Elected President in 1911

MEXICO

a value in 1900 of \$79,042,644. The cattle numbered 1,497,823, valued at \$40,500,318; horses and colts, 610,033, valued at \$71,312,474; mules, 3700, valued at \$493,825; swine, 1,245,833, valued at \$9,755,042; sheep and lambs, 2,306,476, valued at \$9,646,565. The poultry of all kinds numbered 9,967,039, valued at \$5,610,958. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	1,690,000	55,770,000	\$36,250,000
.....1910	1,670,000	54,108,000	28,677,000
Wheat ....1911	1,025,000	18,450,000	16,236,000
.....1910	936,000	16,848,000	14,995,000
Oats .....1911	1,500,000	42,900,000	19,734,000
.....1910	1,515,000	51,510,000	18,028,000
Rye .....1911	400,000	5,840,000	4,964,000
.....1910	418,000	6,395,000	4,349,000
Potatoes ..1911	330,000	31,020,000	22,024,000
.....1910	350,000	36,750,000	11,392,000
Hay .....1911	2,411,000	a 2,797,000	47,549,000
.....1910	2,592,000	3,370,000	45,832,000

a Tons.

MINERAL PRODUCTION. The total mineral products of the State in 1910 were valued at \$47,771,775. Of this, the copper produced was valued at \$28,125,799; coal, \$2,930,771; clay products, \$2,196,222; Portland cement, \$3,378,940; salt, \$2,231,262, and gypsum, \$668,201. Other mineral products are mineral waters, sand and gravel, and stone.

The State is one of the three largest producers of copper. It is surpassed only by Arizona and Montana. The output in 1910 was 221,462,984 pounds, as compared with 227,005,923 pounds in 1909. The decrease in output was due to voluntary curtailment resulting from the general condition of the market. The copper produced in the State comes from the so-called Lake district, which has been an active producer for 65 years.

The copper production of Michigan in 1911 showed a decrease from the output of 1910 of about 5,000,000 pounds. This decrease was attributed to the relatively low prices of copper which caused some companies either to suspend operations or to produce below their maximum capacity. No unusual development took place during the year, although several mines that have been under development made small productions.

The production of coal in the State in 1910 was 1,534,967 short tons, compared with 1,784,692 short tons in 1909, a decrease of 14 per cent. This was due largely to labor troubles. Of the 3525 men employed, 1663 were on strike from April 1 to June 1, and the average time for each man lost on strike was 52 days.

The State ranks second in the production of iron ore. In 1910 there were mined 13,303,906 long tons, valued at \$41,393,585, as compared with 11,900,384 long tons, valued at \$32,282,622 in 1909. In the State is one range and parts of two other ranges from which iron ore is taken. The Marquette range is comprised wholly in the State, while the Menominee and the Gogebic are also in Wisconsin. See IRON AND STEEL.

EDUCATION. The children of school age, between the ages of five and twenty in 1910, numbered 771,471. The school attendance during the year averaged 541,501. The number of schoolhouses was 8598, and school districts,

7333. The average monthly salary of male teachers was \$105.52 and of female teachers, \$60.10.

FINANCE. According to the report of the State treasurer, the balance on hand July 1, 1910, was \$2,487,883. The total receipts for the year 1911 amounted to \$12,344,453. The disbursements amounted to \$12,956,591, leaving a balance on hand June 30, 1911, of \$2,235,425.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State are as follows:

Michigan School for the Deaf, Flint; Michigan School for the Blind, Lansing; Michigan Employment Institution for the Blind, Saginaw; State Public School, Coldwater; Industrial School for Boys, Lansing; Industrial Home for Girls, Adrian; Michigan Soldiers' Home, Grand Rapids; Kalamazoo State Hospital, Kalamazoo; Pontiac State Hospital, Pontiac; Traverse City Hospital, Traverse City; Newberry State Hospital, Newberry; Michigan Home for the Feeble-minded and Epileptic, Lapeer; Ionia State Hospital, Ionia; Michigan State Prison, Jackson; State House of Correction and branch of the State Prison in the upper peninsula, Marquette; Michigan Reformatory, Ionia; Detroit House of Correction, Detroit; State Sanatorium, Howell; University of Michigan, Ann Arbor; Michigan Agricultural College, Lansing; State Normal College, Ypsilanti; Central Michigan Normal School, Mt. Pleasant; Northern State Normal School, Marquette; Western State Normal School, Kalamazoo; Michigan College of Mines, Houghton; and Psychopathic Hospital, Ann Arbor.

At the last session of the legislature a bill was passed changing the names of all the asylums and substituting the word "hospital" therefor.

A bill was introduced at the last session of the legislature to abolish the several boards of control of the State institutions, and to create a central board having supervision over all State institutions. The bill did not become a law, however, and consequently there has been no change with reference to their administration.

Under a law passed by the legislature of 1909, the contract system in the penal institutions will gradually be replaced with the State account plan. At the last session of the legislature an appropriation was made for the purpose of enabling the board of control of the Michigan State Prison at Jackson, and the branch prison at Marquette, to install industries on the State account. There are some contracts which will not expire for some time, but under the present law the contract system in this State will eventually be wiped out.

PARTIES AND GOVERNMENT

On January 17 the State legislature, which was Republican by a large majority, instead of making a caucus nomination for United States senator elected, without a dissenting Republican vote, Charles E. Townsend, who at the State primaries in the preceding September was declared by a majority of 40,587 to be the choice of the Republican electors of the State for senator.

The State elections of the year were held on April 2. Two Supreme Court justices, two regents of the State university, two members of the State agricultural college board, and a

superintendent of public instruction were then elected. The Republicans won, the average majority for their several candidates being about 125,000. At the same election 10 counties were voted dry, so that now 39 of the 83 counties of the State are dry.

The legislature held its biennial session, beginning early in January and closing April 20, but it did not enact any laws of paramount importance. See *Legislation*, below.

LEGISLATION. The important measures passed at the legislative session of 1911 included the following: The telephone lines and telephone companies within the State are declared common carriers and are under the general control of the railroad commissioner. A measure was passed regulating the assessment of mining property by which the mineral rights shall be assessed in addition to the surface value of the land. A measure was enacted regulating the rights of married women and giving them the right to all their earnings acquired as a result of their personal effort and also the right of selling or disposing of all such earnings and making contracts in relation thereto to the same extent as if they were not married. It is made a felony to carry concealed weapons or to go armed with a dagger, sword, pistol, revolver, etc., or with bat pins over ten inches long.

OTHER EVENTS. There were many forest fires in the upper part of the State during July. Au Sable, on the Lake Huron shore, was almost wholly destroyed July 12, and a few days later the town of Minersburg was partially destroyed. About a dozen persons were burned to death, upwards of \$5,000,000 of property was destroyed, and several thousand people were temporarily without homes. See *ARBITRATION AND CONCILIATION*; and *CHILD LABOR*.

STATE OFFICERS. Governor, Chase S. Osborn; Lieutenant-Governor, John Q. Ross; Secretary of State, Frederick C. Martindale; Treasurer, A. E. Sleeper; Auditor, Oramell B. Fuller; Attorney-General, Franz C. Kuhn; Adjutant-General, James N. Cox; Superintendent of Public Instruction, Luther L. Wright; Commissioner of Insurance, Calvin A. Palmer; Commissioner of State Land Office, Huntley Russell—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Joseph H. Steere; Justices, John E. Bird, Joseph B. Moore, Aaron V. McAlvay, Charles A. Blair, Flavius L. Brooke, John W. Stone, Russell C. Ostrander; Clerk, Charles C. Hopkins, all Republicans.

STATE LEGISLATURE, 1911. Republicans, Senate, 29; House, 87; joint ballot, 116. Democrats, Senate, 3; House, 13; joint ballot, 16. Republican majority, Senate, 26; House, 74; joint ballot, 100.

The representations in Congress will be found in the article *UNITED STATES, Congress*.

MICHIGAN, UNIVERSITY OF. An institution of higher learning at Ann Arbor, Mich., founded in 1837. The number of students enrolled in the various departments of the university in 1910-11 was 5381. The faculty numbered 426 and there were, in addition, sixty-five administrative officials, excluding clerks. During the year 1910-11, Prof. Gardner S. Williams, head of the department of civil engineering, resigned to go into private practice. Prof. Richard Hudson, head of the department of history, and Prof. Otis Cole Jackson, of the

chemical faculty, retired upon the Carnegie Foundation. Among the new appointments were those of Dr. Ulrich E. Phillips, in the department of American history; Edward R. Turner, European history; Herbert R. Cross, fine arts; and Charles J. Tilden, engineering and mechanics. The latter two departments are newly created. Instruction in fine arts has not been given hitherto at the university, and instruction in engineering mechanics has previously been given as part of the department of civil engineering. The university is supported almost entirely by the State and does not, as a result, receive many benefactions. A considerable number of business houses and individuals maintain fellowships from year to year. During 1910-11 the university received under the will of Emma J. Cole approximately \$15,000 for the establishment of the Emma J. Cole fellowship in botany. The productive funds amounted in 1910-11 to \$545,974 and the estimated income during 1911-12 will be \$1,400,000 with an additional \$280,000 for the purpose of constructing a new heating and lighting plant. A new building is under construction under the bequest of the late Regent Arthur Hill, an auditorium to seat over 5000 persons and to cost, exclusive of site, \$230,000. The university in 1911 embarked for the first time on the additional policy of university extension. It is expected that members of the faculty will deliver some 300 lectures in the State under the direct auspices of the university. There has also been established a course leading to the degree of doctor of public health. This is a graduate course for the purpose of preparing men to administer public health departments and similar civic work. The library contains 210,000 volumes. The president is Harry B. Hutchins.

MIGHELS, PHILIP VERRILL. An American author, died October 13, 1911. He was born at Carson City, Nev., in 1869, and was educated in the private schools and Carson City high school. He studied law and was admitted to the bar in 1890. He did not practice, however, but engaged in journalism. In 1892-3 he was employed on papers in San Francisco and in 1894 removed to New York. In the year following he retired from journalistic work and devoted himself exclusively to authorship. He spent four years in London, from 1897 to 1901. He was the author of a volume of poems, *Out of a Silver Flute* (1896), and the novels, *When a Witch is Young* (1901); *A Crystal Scepter* (1901); *The Inevitable* (1902); *Braver Jim's Baby* (1904); *Sunnyside Tad* (1907); and *The Pillars of Eden* (1909). The last named novel was dramatized. He was the author also of several other plays.

MIGUEL OF BRAGANZA. See *PORTUGAL*.

MILAN OPERA TRUST. See *MUSIC*.

MILES, NELSON A. See *LITERATURE, ENGLISH AND AMERICAN, General Biography*.

MILITARY PROGRESS, INTRODUCTION. Before proceeding to the review of the year 1911 it may be of interest to recall briefly the leading features of military progress during the four years immediately preceding. In 1907 all European nations strengthened their armies. In that year Germany took a definite stand on the question of the limitation of armaments, declining to take further part in The Hague conferences if that matter were to be discussed.

During the next three years the following developments may be mentioned: A more open tactical formation of infantry owing to new and more powerful small arms; increased importance of the dismounted action of cavalry; great progress in the improvement of the power of heavy guns in coast artillery; increase of the number of machine guns with mounted troops; the discarding of the lance; almost complete rearmament throughout the world with improved weapons in field artillery; the growing belief that owing to the increasing power of small arms, the old "shock tactics" should be discarded; extraordinary development in aeronautics and the rapid improvement of aeroplanes and dirigibles. The French service excelled in the aeroplane work, while the German service kept the lead in dirigible. In 1910 also there were important developments in motor transportation. It now seemed possible that, to a great extent, the motor would supplant the horse. Successful tests were held everywhere. The principal problem lay in getting the necessary increase of horsepower while at the same time decreasing the weight of the motor and vehicle. In 1910 the new pack was issued and proved a great advance in every particular over the old method of carrying the soldiers' load.

PANAMA CANAL. The question of the advisability of fortifying the Panama Canal was settled after considerable discussion by the Congress of the United States making an appropriation for that purpose and directing that the work be done under the control of the canal commission, of which Col. George W. Goethals, corps of engineers, United States army, is the chairman. Three views appeared in the discussion: (1) Not to fortify; (2) to use the navy to defend the canal; and (3) to construct fortifications. Those contending that the first view was the proper one defended their stand on the grounds that the treaties under which the United States was constructing the waterway did not permit of fortifications, and that the correct solution of the problem of "peace" required the omission of forts. Those holding to the last two views contended for the necessity of military protection, and army and navy officers and others conversant with strategic principles clearly showed that to tie the navy to the canal for the purpose of defense was to rob the fleet of one of its prime requisites—mobility.

FORTIFICATIONS. The *Scientific American* of March 11, discussing the question of the best economical method of providing efficient harbor defense, advanced an idea which has been favorably commented on, and deserves recognition. It was to utilize obsolete battleships by placing them in favorable positions at the entrances to harbors, settling them firmly on piling and concrete, building heavy protection around the hull, of concrete and other available material, removing the navigating machinery and leaving only such machinery as was necessary for operation of the plant, thus constituting the old ship, with practically its original armament or such modifications of armament as might be practicable, a fort of good value.

CANNON, SMALL ARMS, AND POWDER. In the United States some difficulty was experienced in securing satisfactory bids for the construction of the new 14-inch guns that are to be mounted, and most of these guns are being built at the Watervliet Arsenal by the ordnance

department of the army. The practicability of the 14-inch gun of 45 calibres in length having been determined, both the navy and the army have decided to utilize a considerable number of this size.

A number of accidents in using smokeless powder drew attention to its unstable character, and Sir Hiram Maxim, in an article in the *Scientific American* of January 21, 1911, pronounced that used by the American army and navy to be the best in the world. There are four desiderata for good smokeless powder: 1st, that it be stable; 2d, that it produce high velocities with low chamber pressures; 3d, that it have a minimum of erosive effect; and 4th, that it shall give regular pressures. All of these the American powder has to a large degree.

Marked improvement was made during the year in the "mufflers" for small arms. The basic principle of practically all types of silencers is the same. The endeavor is to impel the exit of the explosion gases from the muzzle, so as to convert their ordinary sudden motion to a more or less gradual process. The best types screw on the muzzle; and are of but little weight, thus disturbing the balance of the piece but little.

An important development of guns for attacking aeroplanes is the McLean-Lissak automatic machine gun capable of firing 350 shots per minute, with a muzzle elevation of 75°. The mechanism is gas-operated, and the piece is mounted on a tripod sufficiently high to enable the firer to lie on the ground and direct the gun.

A German inventor brought out a shell which is designed to act as an aerial automatic magazine gun, in order to reach an enemy behind entrenchments. The centre of the shell contains explosive materials and shrapnel, to be detonated as an ordinary shell at a predetermined moment. Before that moment, however, it is arranged to fire backwards continuously. To effect this, cartridges are set into the shell with a slope backwards, and, by means of a timing device, are fired successively. The powder charge in the cartridges is sufficient to give the bullets a backward velocity, notwithstanding the forward progress of the shell. The device is valuable only when the shell is moving with a flat trajectory, for it will be seen very readily that, if the nose of the shell is pointed downward, the greater part of the bullets will fly upwards, and vice versa.

The race in development between gun and armor progressed with startling leaps. Experiments in February and March on the old United States ram *Katahdin* showed conclusively that the gun is well in the lead. Twelve-inch shells fired at 8- and 10-inch armor plate from a distance of 8000 yards with an initial velocity of 2400 feet per second completely penetrated the plates, thus demonstrating the terrible power of the guns that all the great ships of the world now carry. When to this power is added the deadly accuracy of modern ordnance, an argument for peace is obtained more potent than most others that have been proposed. These experiments were strikingly confirmed by later ones against the old United States battleship *Texas*, renamed the *San Marcos*. Firing with the most powerful guns in the navy, with ranges varying from six to nearly twelve miles, the gallant old ship was completely riddled and her interior torn up

by the most accurate fire of heavy ordnance in the history of the world. The armor was, at no range, proof against the 12- and 14-inch armor-piercing shells. Since this firing was from the unsteady platforms afforded by vessels, this is only an indication of what would happen to a battleship subjected to the more accurate and deadly fire of fortifications.

Airships having become a reality, methods were devised to destroy them. A certain measure of success at this having been attained by the perfection of land guns, naturally the aviators sought protection for themselves, not only against land attack, but against an aerial enemy. A Swedish inventor, early in the year, produced an aerial torpedo for use by air craft, and it was manufactured by the Krupps. It is self-propelling, and acts practically without recoil on the vessel from which discharged. The principle is similar to that of a sky rocket having an explosive head and a tail chamber containing a slow burning powder charge, the gases from which, being discharged to the rear, drive the torpedo forward. The initial velocity is derived from a launching device whose motive force is either electricity or a light powder charge. A range of 5000 yards has been obtained, with fair accuracy, the torpedo carrying six pounds of explosive for the final burst. By this means the warfare of the future will take place not only on the earth and under the waters of the earth, but in the air above.

It has been found that searchlights are not at all times effective in the field, for the irregularities of the ground may still easily be able to conceal bodies of troops. This led to the invention early in the year and the production during the autumn manoeuvres of the German army of what has been styled a "self-illuminating pistol." As a matter of fact, it is not the pistol, but the projectile that is luminous. The projectile explodes after the fashion of a rocket, and produces either a red or a white light, according as it is used for signaling or for illumination. Sufficient light is developed to render comparatively small objects visible for a distance of 200 meters (nearly 220 yards), and the light lasts about ten seconds after the burst.

ELECTRICAL APPARATUS. Wireless Telegraphy. In the German army a wireless outfit was adopted to be operated by six men, and capable of being carried by cavalry. A telescope mast can be set up in a few minutes and connected with an automobile sending and receiving station. The station can be prepared for work in six minutes and has a radius of one hundred miles.

A successful equipment of the same type adopted in England consists of a small light motor driving a dynamo, a receiving and transmitting set, and a light mast, the whole handled by four men and eight horses, four horses carrying the equipment. The parts are carried so that the station can be set up in a very short time. One horse carries the generating set, another the transmitter, a third the receiving instruments, and the fourth the mast and stays. The equipment is all secured to the saddles in a way to obtain greatest ease in transportation. The generating set is fixed permanently to the saddle, which latter, when removed from the horse, stands on four legs, two supporting the dynamo and two the gaso-

line engine. There is a fuel tank on each side of the saddle. The dynamo is coupled directly to the motor by a detachable shaft. Marconi receiving and transmitting instruments are used and compactly placed on the saddles. The mast is of the jointed fishing-rod type and about fifty feet long. The practical value of this set for cavalry entirely detached from other means of transportation has been amply demonstrated, and it is also practicable for use by infantry and field artillery.

Communication between airships and the earth, and from one airship to another was the subject of great development during 1911. In January, Capt. Paul W. Beck of the United States infantry transmitted wireless messages for a considerable distance from a Wright biplane in San Francisco, Cal. He trailed a 100-foot length of copper wire from the aeroplane as a receiving wire. When through with the wire it could not be drawn up, so was cut. This entailed the loss of a considerable amount of wire for each series of messages, and the number of messages was limited by the weight of wire that could be carried. Later experiments proved the practicability of using the guy wires of the aeroplane.

In France wireless messages were transmitted fifteen miles during experiments made in January; and in England, from the dirigible *Beta*, thirty miles. On March 6 good results in wireless from aeroplanes were obtained at Palm Beach, Fla., by J. A. D. McCurdy, P. G. B. Morriss, and G. W. Hoey. A light Marconi set was installed on an aeroplane and the antennae were stretched between the struts and rudder supports. A Marconi magnetic detector was connected on the "ground" side to the metal frame of the machine, and, with a number of small plates of tin foil, formed one side of the condenser, while the earth acted as the other. The aerial side of the detector was made up of rubber-covered wire running around the rudder frame and back several times. The operator carried the detector and tuning apparatus on his knees. At varying altitudes messages were clearly received and sent, and the entire practicability of the apparatus was demonstrated.

A new wireless aeroplane equipment which was adopted by the French army received a successful trial on July 29. Starting from Saint-Cyr and flying at an average altitude of 1800 feet, two operators had no difficulty in keeping in constant communication with the Eiffel tower from an average distance of thirty miles. A magneto operated by the motor of the aeroplane produced the spark, and the antennae, of steel wire, were so arranged that they could be rolled up when not in use.

Without intercommunication between airships and the land stations and between airships themselves, the service of reconnaissance remains largely a matter of individual effort. Wireless communication is always subject to disturbance from the enemy, even if the code is not known. Searchlight rays have the disadvantage of visibility at night beyond the range of necessary exchange of signals, thus vitiating their value for military purposes. During sunlight, secret communication can be maintained between an airship and the earth, for the light beam projected by the heliograph cannot be seen except in prolongation of the

beam itself. A method, however, which bids fair to exceed all others for secrecy is photophony, in which a selenium cell apparatus is employed. In this the beam of light is used exactly as a telephone wire, and in England was employed with surprisingly good results in combination with the telephone relay. Without the relay the range was about five miles, while the relay increased the range several fold.

SEARCHLIGHTS. The French army developed a traveling electric arc searchlight, carried by an automobile, which can move at the rate of nineteen miles an hour, the fuel being gasoline, alcohol, or oil, burned in an 18-horsepower engine. The light is of 7000 candlepower, with a 38-inch reflector. It can be removed from the car and set up at any point within a radius of 100 meters (328 feet), that being the length of the flexible current leads from the car to the lamp. If desired it can be operated from the car, the observer moving to one side. It is equipped with an ingenious device arranged on the principle of tuning forks, enabling the operator to manipulate it at will from a place of security however exposed the light itself may be. Positive carbon is used, and the electrodes are so placed as to give an extraordinary effect. With a 60-inch reflector the light gives good results three miles.

ELECTRIC RECORDING RIFLE RANGE TARGET. An electric recording target was perfected by Mr. S. A. M. Rose, an Australian. The apparatus can be applied with equal facility to any desired range, whether indoors or out, up to 2000 yards and more, and with either a stationary or a moving target. It shows misses as well as hits, and is very simple. The position of the hit on the target is shown on electrically operated rollers. Great interest has been taken in the invention, and it promises to be an important step in target shooting.

MOTOR TRUCKS. As noted in the YEAR BOOK for 1910, motor trucks are now practicable for military use. Continued experiments in all the armies of the world during 1911 enabled marked improvements to be effected. The leading objection, the great weight of those trucks possessing sufficient power, was gradually overcome by the improvement of the motors, enabling a development of more horsepower and a reduction of actual weight. The quartermaster's department of the United States army conducted a series of exhaustive trials, and developed the fact that it is not now a question of the practicability of the trucks, but a question purely of economical operation.

In Germany motor omnibuses were used with a carrying capacity of fifty men at a speed averaging twenty-six kilometers per hour. Smaller detachments had been conveyed in this manner in 1910, and the busses worked so satisfactorily that the same scheme was developed and used in the manoeuvres of 1911. The advantage is that men arrive at their destination much fresher than by marching, and with far greater speed. An experiment was tried during the manoeuvres of working the trucks in conjunction with the marching columns, by carrying a detachment ahead and dropping it, going back to the troops and picking up another detachment, carrying it beyond the first, and so on. The average rate of march for a considerable column was thus increased appreciably, and the entire command arrived at the end

of a day's march in much better condition than otherwise.

AVIATION—Aeroplanes. The art of flying in heavier-than-air machines, immediately on its appearance in a practical form, was seen to be one vitally affecting military operations. The progress in aviation formed by far the most spectacular and startling part of the year's development in the military art.

The United States government, although the first to recognize the possibilities of aviation as affecting military operations, has, with a singular disregard for necessary improvement, practically ignored the pleadings of aviation experts, and the only progress in the United States has been almost entirely due to private enterprise; though Glenn Curtiss, early in January, arranged with the War Department to establish a school for military aviators at College Park, Maryland, and a few officers of the United States Signal Corps made good progress.

Throughout the year bomb-dropping experiments were continued in all the armies of the world. It has been practically settled that throwing missiles by hand is too uncertain a method to be of value, especially in view of the fact that the aeroplane must go so low as to make it certain death for the operators when exposed to rifle fire. The destructive effect of bombs did not need demonstration, but the first case of the actual use of a bomb with explosive took place in some experiments that were conducted at San Francisco, Cal., by United States army officers. The bomb used weighed about eight pounds, and was charged with black powder and bullets. The explosion tore a large hole in the earth, and the bullets were scattered within a circle of radius of fifty yards, the bomb being dropped from a height of 550 feet.

An instrument was devised and tried in the United States for the accurate launching of missiles, and forms the foundation for the development of similar weapons. A telescope is fixed in a vertical quadrant, under which is carried the bomb to be thrown. The problem is practically that of calculating the portion of the trajectory in vacuo, of a mortar shell from the apex, or highest point, to the point of impact. It is easily seen that, supposing the aeroplane moving horizontally with a speed equal to that of a shell at its highest point, the bomb which is released from the aeroplane at that point will complete the unfinished trajectory, acted on by the initial momentum and by gravity. Knowing from the barometer the height of the machine, and from calculation the speed, the elements necessary to compute the trajectory are known, and the point of impact can be calculated. By this calculation the angle of depression from the point of launching to the target can be ascertained and the telescope set in the quadrant at this angle. The firer then releases the bomb at the moment the line of sight from the telescope pierces the target. In practice the elements of uncertainty are the speed of the aeroplane, the altitude, and the effect of air currents. With improved speedometers and barometers these elements can be reduced to a minimum.

In February, Lieut. B. D. Foulois, of the United States infantry, assisted by Charles K. Hamilton, a civilian, traversed a large part of the Mexican border and located bodies of

Mexican troops. On March 3 Lieutenant Foulois and Philip Parmelee flew from Laredo, Tex., to Eagle Pass, 116 miles, without a stop, at an average speed of fifty-five miles an hour, maintaining wireless communication with the detachments of American troops along the border. They carried rations for several days, and demonstrated the entire practicability of the aeroplane for scouting purposes. On March 16 these same aviators flew from the camp of the manoeuvre division at San Antonio, twenty-six miles to Leon Springs, delivered a message, and returned over a slightly longer route to the starting point in an hour and forty-five minutes. On March 18 they also made a successful flight.

On the outbreak of war between Italy and Turkey the Italian government dispatched with the fleet to Tripoli a complement of eight monoplanes and two biplanes. On October 23 Captain Piazza of the aeronautic corps flew over the fleet and then made a reconnaissance of the neighboring country in a Blériot monoplane. Among the Arabs and other Turkish troops the machine was awe-inspiring and created a great sensation, thus demonstrating its moral effect. Valuable information of the strength and disposition of the Turkish forces was secured as far as the oasis of Zanzor, a distance of fifteen miles.

The opinion from experience, up to the end of 1911, is clearly that the proper function of aeroplanes is not that of fighting, but of service of communication and information. This also eliminates from the duties of aviators the handling of explosives and the dropping of bombs. The scouting service of the aviator is for the purpose of ascertaining the strength and disposition of the enemy's forces; and the duties of communication require the transmission of messages between parts of the army widely separated and cut off from telegraphic or telephonic accessibility. In reconnaissance the minutiae cannot be picked up from an aeroplane or a dirigible. For instance, the character of roads and fords cannot be ascertained without alighting, which, in an enemy's country, may be impracticable.

Nevertheless, attention was paid during the year to the protection from rifle fire. On the Voisin biplane of France was placed a shield for the aviator, and in the construction of this protection lightness as well as impenetrability was a prime feature of the material used. Swift movement and altitude have been relied on as good protection from rifle and artillery fire, but the daring of operators will certainly bring them into danger frequently, and the provision of a material protection will not be amiss.

In Germany a luminous compass was invented for the guidance of aviators at night. The dial is covered with a luminous paint.

Messrs. Vickers' Sons & Maxim perfected during January an aluminum alloy which has the strength of mild steel, and which is only slightly heavier than aluminum. It is especially suitable for the frames of aeroplanes and the cars of dirigibles.

Louis Bréguet on March 23 carried eleven people two miles in his military biplane—a total load of 1315 lbs. This demonstrated the practicability of the machine for carrying small detachments.

The French war department started a series

of maps for military aviation purposes. The features shown are those that can be seen from an aeroplane at the height of 600 feet. Roads are shown in white, woods in green, shading indicates slopes—heavy for steep slopes and lighter for more gradual ones—towns and villages are in red, and the minor features are variously indicated. The whole of France will be mapped according to this scheme.

A tentative plan for the organization of the French aeroplane service calls for a reserve corps (not belonging to the regular army) which is to be called on in time of necessity. A great number of civilians have already made good records, and these are to be listed in the reserve. Already quite a number of these men have received military decorations for service. Inasmuch as all private citizens are nominally a part of the French military forces, in time of war it is expected to requisition not only the aviators, but their private machines, compensating them justly for the confiscation.

While the operation of aeroplanes against submarines is a long stretch of the imagination, yet this was accomplished in 1911, and pertained to army coast defense operations. Early in September important experiments were made in the harbor of Cherbourg, France, to determine whether submarines could be discovered from an aeroplane. The experiments were a complete success, and proved beyond doubt that from a height of 500 to 3000 feet the submarines looked like large black masses under the water, and, without great difficulty, could be located. While this is of greater importance to naval than to military operations, yet it possesses a great significance for land work.

The vibration of the aeroplane makes it difficult for a sketcher to make a map of the country underneath, although this was done fairly successfully in all the autumn manoeuvres. Photography will probably be the most reliable method of recording views from such heights. A camera adapted to taking cinematographic pictures was used with greater success than any other. By night this camera can be used by the aid of a searchlight.

In the latter part of October there occurred in France the preliminary tests for the prizes for military aeroplane development. These tests were made according to the announcement of the year before. There were thirty entries—nine monoplanes, nineteen biplanes, and two triplanes. In the first tests the triplanes, six monoplanes, and fourteen biplanes were eliminated. On November 4 the final test resulted in Charles T. Weyman, an American, winning the first prize with a Nieuport monoplane, covering the required distance of 186 miles in two and one-half hours. The total weight of the machine, live load, and ballast was a little over a ton. This mass was moved at an average speed of 74½ miles per hour. Weyman created a sensation by alighting with his tremendous load on, and starting with it from exceedingly rough and difficult ground, such as plowed fields, etc. His closest competitor covered the same distance in 3¼ hours.

Referring to the autumn manoeuvres of 1911, *Le Matin* of Paris observed that they furnished abundant proof of the military value of aeroplanes. Messages were delivered at points beyond the reach of any other means of communication in the time consumed. The service of com-

munication is placed first; scouting comes next; and the direction of artillery fire has assumed a great importance. *Le Matin* disputes the value of the aeroplane for dropping bombs, although admitting that such bombs might prove effective against bridges and other railroad structures. Having encouraged the development of the machine by more or less individual effort, the next proper step for the French government was considered to be the organization of the aeroplane service into an efficient military corps.

In the German autumn manœuvres work of the greatest value, so rated by conservative officers, was done on both sides by the aeroplanes, assisted by the dirigibles, but the former were easily of greatest importance. All the operators were of the military service, differing in this from the French organization. The weather was very favorable for the best work of the air craft. The Blues were equipped with one Gross-Basenach dirigible (M II.) and four Albatross-Farman biplanes. The Reds had a dirigible of the same type (M III.), and four Taube monoplanes. Each aeroplane carried two men. Each side had an aeronautic field park, which was made up of a portable airship tent and four aeroplane tents. The airship tents were 100 meters long and consisted of a framework of steel masts and cable covered with canvas, which took about a day to erect, and was very cumbersome. The aeroplane tents could be erected in a short time. The large tents required a considerable amount of transportation equipment, while the small ones needed only two automobile trucks.

A Blue aeroplane moved out one evening to the line of outposts, the tent was erected for night shelter, and, in the early morning, the machine ascending for reconnaissance, the hangar was knocked down, loaded in the automobile trucks in a few minutes, and carried rapidly to the rear to a place of safety, while the aeroplane, from this advanced position, was able to secure valuable information with a minimum expenditure of fuel and time.

At an important crisis in the manœuvre the Reds were concentrating for a decisive blow, while the Blues were scattered. The Blues tried a bluff. They purposely lost a map showing fake positions of large bodies of troops. The "scenery" was all laid, by "outlining" the positions, and by indicating them on the "lost" map. It was so well done that the Red commander issued his orders for an attack on the positions supposed to be held in force. It occurred to one of the aeroplane scouts of the Reds that it would be just as well if he verified the "information" on which his commander was acting. He immediately discovered the ruse on flying over the "outlined" positions, and, not having time to alight to deliver his report, dropped it from his aeroplane so that his commander received it in time to stop the movement. The aviator was personally complimented by the kaiser.

Dirigibles. Germany has, from the start, done more with dirigibles than any other country, and continued to do so during 1911. Larger and more manageable ships were constructed. The military air harbors at Königsberg and Thorn, on the eastern frontier, were equipped with docks for the largest vessels. These docks consist of huge permanent structures, which will serve as bases for vessels having a large radius of action. They are located within the fortress

and may be entered at night as well as by day. Stations had already been established at Dusseldorf and Baden-Baden, and others were built at Potsdam, and near Berlin, Frankfurt, Hamburg, Gotha, and Kiel. In emergencies it is planned to utilize also the smaller stations at Cologne, Strassburg, Metz, and Königsberg. Aerial beacons, as lighthouses, were, by the end of the year, very common. See also AERONAUTICS.

MILK. See DAIRYING.

MILK. EXHIBITION OF. See DAIRYING.

MILK, TUBERCULOUS. See TUBERCULOSIS.

MILLS, ROGER QUARLES. Former United States senator from Texas, died September 2, 1911. He was born in Todd county, Ky., in 1832. In 1849 he removed to Texas. He studied law and was admitted to the bar by special act of the legislature at twenty years of age. In 1859 he was a member of the Texas House of Representatives. He enlisted in the Confederate army and took part in several important battles. He was promoted to the rank of colonel and was wounded in the battle of New Hope Church in 1864. In the same year he received another wound at Atlanta. He commanded a brigade at the close of the war. After serving in the Texas legislature he was elected to the National House of Representatives in 1873 and served continuously in that body until 1892. During his service he made a special study of tariff reform. In 1891 he was a candidate for speaker of the House, but was defeated by Charles F. Crisp of Georgia. He felt this blow keenly and retired from the chairmanship of the Ways and Means Committee which he held through several terms. In 1892 he was elected to the Senate for the unexpired term of Horace Chilton. He was re-elected for the term 1893 to 1897. As chairman of the Ways and Means Committee of the House he prepared the tariff bill known as the Mills bill, which made the issue for the presidential election of 1888. He was a man of strong convictions and unquestioned courage. He was known in both houses as an excellent speaker.

MILWAUKEE. See BUILDING; MUNICIPAL GOVERNMENT, and WISCONSIN.

MINERALOGY. The contributions to mineralogy during the last few years have included descriptions of many new rare or otherwise interesting species and a great amount of research work upon mineral properties and relationships. Much of this work, however, has been merely routine in its character, making appeal only to the special student of the different departments. Of more general importance have been the investigations into the principles governing the formation and occurrence of minerals, for which the recently developed methods of physical chemistry have furnished the experimental basis. The contributions of the Carnegie Geo-Physical laboratory, in Washington, may be considered among the most notable that have been published lately in this field of study; the experiments by Day, Allen, and others of the staff on the thermal constants of minerals have explored much new ground and set a standard for precision that should prove of permanent value.

Among the recent discoveries of rare minerals is that of diamonds from the Tulameen River district, British Columbia. This is the second known occurrence where the stones have been found in North America in their original rock matrix. Loose diamonds have been picked

up in considerable numbers throughout many sections of this country and Canada, and their derivation has long been a puzzle to mineralogists. The discovery of diamond "pipes" in Pike county, Arkansas, reported a few years ago, has not been followed as yet by any commercial mining operations.

The theory of solid solutions, best exemplified by certain alloys and chemical compounds, has come into some prominence as a possible explanation of the apparent anomalies exhibited by some minerals. H. W. Foote and W. M. Bradley have sought to show that it may be applied to the mineral nephelite, in which case the chemical complexity can be attributed to the existence of silica, held in solid solution by the nephelite molecule. On the basis of several careful analyses they conclude that the pure compound which forms the molecule is an orthosilicate of sodium and aluminium, corresponding to the minerals eueryotite and kaliophilite, which carry lithium and potassium respectively in the place of potassium, and which are isomorphous with nephelite. An argument for this view is found also in its simplicity as contrasted with the former assumption of a series of chemical compounds present in variable proportions.

NEW MINERALS. The following minerals were described for the first time in 1911. *Ferritungstite* is a hydrous ferric tungstate, forming hexagonal plates of yellow color, an alteration product of wolframite. It occurs in the Germania mine, Deer Trail district, Washington. *Gajite* is a hydrocarbonate of lime and magnesia, white in color and of massive appearance. *Hinsdalite* belongs to the group of rare minerals that includes *svanbergite*, *corkite*, and *beudantite*. Chemically it is a hydrous salt of sulphuric and phosphoric acids, with lead and aluminium as the principal bases. The crystal form is rhombohedral. Found in the gangue of the Golden Fleece mine, near Lake City, Col. *Molengraafite*, a titano-silicate of calcium and sodium, differs from all other titanium minerals in its high content of sodium, which amounts to over ten per cent. It forms brown prisms of monoclinic habit, weathering to titanite and calcite. *Nataamolygonite*, as the name indicates, is a sodium amblygonite, greenish white in color. It accompanies tourmaline, muscovite, and lepidolite in a pegmatite from near Cañon City, Col. *Plumboniobite*, allied to samarskite and yttrantalite, contains a number of rare elements, including uranium, yttrium, tantalum, helium, niobium, etc. The type locality is a mica quarry near Mrogoro, German East Africa, where it accompanies pegmatite. *Yttriofluorite* consist of calcium and yttrium fluorides, with a small amount of cerium. It somewhat resembles fluorspar in appearance and like the latter crystallizes in the isometric system. It occurs in pegmatitic granite in northern Norway.

Sphenoclase, a supposedly mineral species and described in mineralogies as an aluminum silicate, should be dropped from the list. A more careful examination of the material from Gjellbåk, Norway, on which the species was first established, has shown it to be a fine-grained mixture of garnet and pyroxene.

MINERAL PRODUCTION. The details of the mineral production in foreign countries at the latest dates available will be found in the articles on these countries in their alphabetical order. Statistics of the production of the vari-

ous metals and minerals will be found under their own heads, as COAL, COPPER, GOLD, SILVER, etc. The mineral production of the different States will be found in the paragraph *Mineral Production* in the State articles. The accompanying table is a summary of the mineral production of the United States in 1909-10 (see pages 449 and 450).

MINERS' ANÆMIA. See HOOKWORM DISEASE.

MINERS' STRIKES. See STRIKES.

MINES, SAFETY IN. See LABOR LEGISLATION.

MINIMUM WAGES. See WAGES, MINIMUM.

MINNEAPOLIS. See MINNESOTA, and BUILDING.

MINNESOTA. POPULATION. The Thirteenth Census, taken in 1910, showed the population of the State in that year as 2,075,708, as compared with 1,751,394, an increase of 324,314, or 18.5 per cent. in the decade. The principal cities, with their population in 1910 and 1900, are as follows (the figures in parentheses are for 1900): Minneapolis, 301,406 (202,718); St. Paul, 214,744 (163,065); Duluth, 78,466 (52,969); Winona, 18,583 (19,714).

AGRICULTURE. The acreage, production, and value of the chief crops in 1910 and 1911 are given in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	2,200,000	74,140,000	\$39,294,000
.....1910	2,040,000	66,708,000	30,019,000
Wheat ....1911	4,350,000	43,935,000	40,420,000
.....1910	4,000,000	64,000,000	60,160,000
Oats .....1911	2,948,000	67,214,000	28,386,000
.....1910	2,977,000	85,440,000	27,341,000
Rye .....1911	240,000	4,488,000	3,501,000
.....1910	256,000	2,352,000	2,785,000
Potatoes...1911	225,000	25,875,000	15,068,000
.....1910	220,000	13,420,000	8,589,000
Hay .....1911	799,000	a 799,000	9,508,000
.....1910	908,000	908,000	8,263,000

a Tons.

MINERAL PRODUCTION. The mineral products of the State in 1910, aside from iron ore, were valued at \$6,088,620. Of this, clay products were valued at \$1,901,296; sand and gravel, \$347,138; lime, \$96,150. Minnesota ranks first among the States in the production of iron ore. There were mined in the State in 1910, 31,966,769 long tons, valued at \$78,462,500. This was a considerable increase over the production of 1909, which was 28,975,149 long tons, valued at \$60,253,314. The largest quantity of iron ore was mined in the Mesabi range, from which 30,576,409 long tons were taken. From the other range, the Vermilion, were taken 1,390,360 tons. The Mesabi range produces 66 per cent. of the entire Lake Superior iron ore. See IRON AND STEEL.

EDUCATION. Statistics of education were as follows in 1911: Number of school districts, 7941; number of schoolhouses, 8841; number of teachers, 15,663; number of pupils, 443,445; amount of permanent school fund, \$22,000; money expended for various public educational purposes, \$17,000; value of public school property, \$30,000.

The most significant evidences of public school progress in Minnesota are extension of industrial courses, that is, courses for industrial training, in the public schools, and the general State movement for the consolidation of rural schools. Minnesota grants, annually, \$2500 a

MINERAL PRODUCTION IN THE UNITED STATES, 1909-1910.

From *Mineral Resources of the United States*, 1910, U. S. Geological Survey.

Product	1909		1910	
	Quantity	Value	Quantity	Value
METALS				
Pig iron (a) (spot value b).....long tons (c)...	25,795,471	\$ 419,175,000	27,303,587	\$ 425,115,235
Silver, commercial value (d).....troy ounces..	54,721,500	28,455,200	57,137,900	30,854,500
Gold, coining value (e).....do.....	4,821,701	99,673,400	4,657,018	96,269,100
Copper (f), value at New York City.....pounds..	1,092,951,624	142,083,711	1,080,159,509	137,180,257
Lead (f), value at New York City.....short tons..	354,188	30,460,168	372,227	32,755,976
Zinc (f), value at St. Louis.....do.....	230,225	24,864,300	252,479	27,267,732
Quicksilver, value at San Francisco.....flasks (g)...	21,075	957,859	20,601	958,153
Aluminum.....pounds..(h)34,210,000		6,575,000 (h)47,734,000		8,955,700
Antimony (i).....short tons.....				
Antimonial lead.....do.....	12,896	1,231,019	14,069	1,338,090
Nickel (j), value at Philadelphia.....pounds.....		(v).....		
Tin.....do.....		(k)4,832		23,447
Platinum, value at New York City.....troy ounces..	638	15,950	773	25,277
Total value of metals.....		753,496,439		760,743,467
NON-METALS (Spot values, b)				
Fuels:				
Bituminous coal (l).....short tons..	379,744,257	405,486,777	417,111,142	469,281,719
Pennsylvania anthracite.....long tons..	72,384,249	149,181,587	75,433,246	160,275,302
Natural gas.....do.....		63,206,941		70,756,158
Petroleum.....barrels (m)...	183,170,874	128,328,487	209,556,048	127,896,328
Peat.....do.....		127,042		140,209
Structural Materials:				
Clay products (n).....do.....		166,321,213		170,115,974
Cement.....barrels (o)...	66,689,715	53,610,563	77,785,141	68,752,092
Lime.....short tons..	3,484,974	13,846,072	3,481,780	13,894,962
Sand, molding, building, etc., and gravel.....short tons..	58,461,100	17,173,615	66,949,347	19,520,919
Sand-lime brick.....do.....		1,150,580		1,169,153
Slate.....do.....		5,441,418		6,236,759
Stone (p).....do.....		71,345,199		76,520,584
Abrasive Materials:				
Corundum and emery.....short tons..	1,580	18,185	1,028	15,077
Abrasive quartz and feldspar.....do.....	(q).....			(q).....
Garnet for abrasive purposes.....do.....	2,972	102,315	3,814	113,574
Grindstones.....do.....		804,051		796,294
Infusorial earth and tripoli.....short tons..		122,348		130,006
Millstones.....do.....		85,393		28,217
Oilstones, etc.....do.....		214,019		228,694
Pumice.....short tons..	15,103	33,439	23,271	94,943
Chemical Materials:				
Arsenious oxide.....pounds..	2,428,000	52,946	2,994,000	52,305
Borax.....do.....	41,434	1,534,365	42,357	1,201,842
Bromine.....do.....	569,725	57,600	245,437	41,684
Fluorspar.....short tons..	50,742	291,747	69,427	430,196
Gypsum.....do.....	2,252,785	5,906,738	2,379,057	6,523,029
Lithium minerals.....do.....		(v).....		(v).....
Marls.....do.....				
Phosphate rock.....long tons..	2,330,152	10,772,120	2,854,988	10,917,000
Pyrite.....do.....	247,070	1,028,157	238,154	958,608
Sulphur.....short tons..	239,312	4,432,066	255,534	4,605,112
Salt.....barrels (s)...	30,107,646	8,343,831	30,305,656	7,900,344
Pigments:				
Barytes (crude).....short tons..	61,945	209,737	42,975	121,746
Cobalt oxide.....pounds.....		(v).....		
Mineral paints.....short tons..	78,771	2,373,805	85,685	2,174,735
Zinc oxide.....do.....	68,974	6,156,755	59,333	5,325,636
Miscellaneous:				
Asbestos.....short tons..	3,085	62,603	3,693	68,357
Asphalt.....do.....	228,655	2,138,273	260,080	3,080,067
Bauxite.....long tons..	129,101	679,447	148,932	716,258
Chromic iron ore.....do.....	598	8,300	205	2,729
Feldspar.....short tons..	76,539	424,602	81,102	502,452
Fuller's earth.....do.....	33,486	301,604	32,822	293,709
Gems and precious stones.....do.....		534,380		295,797
Glass sand.....short tons..	1,104,451	1,163,375	1,461,089	1,516,711
Graphite.....{ crystalline, pounds.....	6,294,400	313,271	5,590,592	295,733
Graphite.....{ amorphous, short tons..		5,096		81,443
Magnesite.....do.....	9,465	37,860	12,443	74,658
Manganese ore.....long tons..	1,544	19,675	2,258	22,892
Manganiferous ore.....do.....	68,654	215,925	61,101	186,765
Mica.....{ sheet, pounds.....	1,809,582	234,482	2,476,190	283,832
Mica.....{ scrap, short tons..		4,090		53,265
Mineral waters.....{ gallons sold..	64,674,486	6,894,134	62,030,125	6,357,590
Quartz.....short tons..	135,469	249,466	63,577	193,757
Talc and soapstone.....do.....	81,802	862,002	79,006	864,213
Talc, fibrous.....do.....	48,536	359,957	71,710	728,180
Thorium minerals (monazite), and zircon.....pounds..	543,931	65,282	99,301	12,006
Titanium ore (rutile).....do.....		10,000	566	41,480

MINERAL PRODUCTION (Continued)

Product	1909		1910	
	Quantity	Value	Quantity	Value
NON-METALS (continued.)				
Tungsten ore.....short tons..	1,619	614,370	1,821	807,807
Uranium and vanadium minerals.....do.....		(v)		(v)
Total value of non-metals.....		\$1,132,976,404		\$1,242,701,402
Total value of metals.....		753,496,439		760,743,467
Estimated value of mineral products un-				
specified (v).....		300,000		300,000
Grand total.....		\$1,886,772,843		\$2,003,744,869

a Production of iron ore. 1909: 51,155,437 long tons; value at mines, \$109,964,903. 1910: 56,889,734 long tons; value at mines, \$140,735,607. Statistics for iron ore and value of pig iron are collected by the Survey; statistics for pig iron output are furnished by the American Iron and Steel Association.

b By "spot" is meant value at the point of production.

c Long tons are tons of 2240 avoirdupois pounds; short tons are tons of 2000 avoirdupois pounds.

d Average price per troy ounce in 1909, 52 cents, in 1910, 54 cents.

e Since 1906, coining value, \$20.671834625323.

f The product from domestic ores only.

g Of 76½ avoirdupois pounds net; of 76 avoirdupois pounds net since June, 1904.

i Includes antimony smelted from imported ores, and also antimony contained in hard lead, except in 1907, 1908, 1909, and 1910.

j Includes nickel in copper-nickel alloy, and in exported ore and matte.

k Including brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania. Coke, 1909: 39,315,065 short tons; value at ovens, \$89,965,483. 1910: 41,708,810 short tons; value at ovens, \$99,742,701.

m Of 42 gallons.

n Value of clay mined and sold as unmanufactured clay. 1909: \$3,449,707. 1910: \$3,625,485.

o Of 380 pounds net.

p Includes limestone for iron flux, but not grindstones.

q Included under feldspar and quartz.

r Of 280 pounds net. Value is for net product exclusive of cost of packages.

v Includes nitrate of soda, carbonate of soda, sulphate of soda, and alum clays used by paper manufacturers; and bismuth, cadmium, lithium, selenium, and vanadium, valued together in 1910 at \$277,000.

year to each of thirty high schools which maintain courses in agriculture, manual training, and home economies. One thousand dollars annually is granted to another class of fifty high schools, for maintaining courses in agriculture, and one other industrial line. The standard required of teachers in this work is that they must be graduated from a four-year technical course. The rural schools are aided by grants of money from the State, ranging from \$100 to \$300, for each individual school.

CHARITIES AND CORRECTIONS. In the legislature, which convenes in January, 1912, an attempt will be made to secure the enactment of a bill establishing a juvenile reformatory, juvenile courts, and a probation system. There is a growing public interest in the matter of prison reform in the State. The legislature will be asked also to pass a bill providing for the parole system. The work of the Mississippi Juvenile Reformatory Association has been of great value in arousing interest in these reforms.

The charitable and correctional institutions under the control of the State, and their populations in 1911, were as follows: Anoka Asylum, insane, 517; Hastings Asylum, insane, 564; Fergus Falls Hospital, insane, 1630; Rochester Hospital, insane, 1234; St. Peter Hospital, insane, 1021; School for the Blind, 82; School for the Deaf, 165; School for the Feeble-minded, 1246; Owatonna, State Orphans' Institution, 222; Red Wing Training School, 364; Home School for Girls, Sauk Centre, 63; St. Cloud Reformatory, 362; Stillwater Prison, 700; Sanatorium for Consumptives, Walker, 78; Crippled Children, Phalen Park, St. Paul, 29; total, 8324.

During the year a separate building for the dangerous and criminal insane was opened at the

St. Peter State Hospital. At present there are 54 inmates.

Detention hospitals for the insane were opened at the Fergus Falls and St. Peter State hospitals. During the year ending August 1, 1911, 459 patients have been committed by the courts to the Fergus Falls Detention Hospital, and 39 patients received on voluntary commitment. The detention hospital at St. Peter has been in operation four months, during which time 101 patients have been received. A detention hospital will also be opened at the Rochester State Hospital in the near future. The State Hospital Farm for Inebriates at Willmar, established by the legislature of 1907, is making rapid progress. Building contracts have been let for about \$210,000. The institution is located on a tract of land of 495 acres, and is designed at the outset to take care of about 60 patients. For some years an indeterminate sentence law (with a minimum and maximum term) has been in operation at the St. Cloud Reformatory. The last legislature passed a law which makes the indeterminate sentence apply at Stillwater. The new law is wider in its scope, especially in matters relating to the parole of prisoners, permitting parole at any time after commitment, doing away with the minimum sentence, but retains the provision as to the maximum term of imprisonment. A new parole board has been created to administer the law, consisting of the chairman of the State Board of Control, the warden of the State prison at Stillwater *ex officio*, and a citizen of the State appointed by the governor. An amendment was also passed prohibiting the commitment of any but male prisoners to the St. Cloud Reformatory. As formerly there was no specific prohibition, female prisoners were occasionally committed

by the courts to the reformatory, where there was no proper provision for their care and custody.

FINANCE. The report of the treasurer showed a balance in the treasury, August 1, 1910, of \$4,261,231. The receipts during the year amounted to \$15,612,048, and the expenditures to \$16,364,789, leaving a cash balance in the treasury, July 31, 1911, of \$3,508,491. The bonded debt of the State at the end of the fiscal year amounted to \$1,518,000.

POLITICS AND GOVERNMENT

The State legislature met in 1911 and the most important measures passed are noted in the paragraph *Legislation* below. On January 17 the legislature reelected Moses E. Clapp to the United States Senate. There was no opposition to his election. All of the Republican members and two-thirds of the Democrats voted for him. On April 22 Governor Eberhart signed a bill providing for the nomination of United States Senators by direct vote. On April 8 a decision was handed down by Judge Sanborn on the long-pending railway rate cases. This decision, in the main, accepted the findings handed in by the master in chancery in September, 1910. The decision was to the effect that the acts of the Minnesota legislature and the orders of the State Railway and Warehouse commission lowering certain passenger fares and freight rates on the Northern Pacific, Great Northern, Minneapolis and St. Louis railroads were null and void. He declared that these rate reductions, although applied only to commerce within the state, actually discriminated against, burdened, and directly regulated interstate commerce, thereby usurping the prerogative of the federal government and violating the Constitution. He declared further that the acts denied to the railroads that fair return upon reasonable valuation of their property, which is guaranteed to them by the Constitution, and was, in effect, confiscation. See *RAILROADS*.

On February 17 President Taft annulled portions of old treaties, which prohibited the sale of liquor in the so-called Indian lands of the State. The interpretation placed upon these treaties by the secretary of the interior gave rise to serious complications in 1910 and previous years. Under these treaties the government reserved the right to regulate the liquor traffic on ceded lands, which passed into the possession of white settlers, for as the land was settled, it was found necessary to place checks on the sale of liquor to the Indians. The State also assisted in the work by passing laws prohibiting the sale of liquor to the Indians even if they had qualified as citizens. In spite of these precautions, liquor continued to be sold to them and they became a source of annoyance to the white people dwelling in the small towns as the result of squandering the funds which they received from the government in the purchase of liquor. Conditions reached such a point in 1908-9 that the government threatened to invoke the provisions relating to the introduction of liquor, pointing out that as the term "Indian country" had been construed it concluded a large area embracing many hundreds of towns and cities. During the summer of 1910 government agents carried on an investigation and as a result of their report the Commissioner of Indian Affairs issued an order di-

recting the closing of saloons in some portions of the country and permitting them to run in others. This action created considerable excitement throughout the State. Representatives of the towns where saloons were closed protested, asserting that it was unfair to prescribe what was equivalent to prohibition in some towns and to permit the sale of liquor in others. Protest was made to Mr. Ballinger, at that time secretary of the interior, who, after considering the matter, ordered the Commissioner of Indian Affairs rigidly to enforce the law, but gave at the same time unofficial assurances that liquor might be sold in the "Indian country" if the local officials saw to it that the traffic did not touch the Indians. President Taft, as noted above, annulled portions of the old treaties which prohibited the sale of liquor in the so-called "Indian country" of the State.

OTHER EVENTS. On March 5 a fire in Minneapolis caused a loss of property valued at \$1,500,000. Several large mercantile establishments were destroyed. This is the second fire within two years in Minneapolis in which the loss has approached \$1,000,000.

LEGISLATION. The important measures passed at the legislative session of 1911 include the following: A measure was enacted relating to drunkenness on railroad trains, prohibiting the drinking of intoxicating liquors on trains, forbidding any person while intoxicated to enter railroad trains, and giving the conductor of any such railroad train authority to arrest, with or without warrant, any person violating the provisions of the law. Measures were passed providing for indeterminate sentence at the State prison and State reformatory in all cases except treason or murder. Provision is made that the court shall not fix a definite term of imprisonment, but shall sentence each person to the State reformatory or State prison, and the sentence shall be without a limit as to time, except that it shall not in any case exceed the maximum provided by law and the prison sentence shall be subject to release on parole and to final discharge by the Board of Parole. A measure was enacted abolishing capital punishment, leaving only imprisonment for life in the State prison for murder in the first degree.

STATE OFFICERS. Governor, Adolph O. Eberhart; Lieutenant-Governor, S. Y. Gordon; Secretary of State, Julius A. Schmah; Auditor, S. G. Iverson; Treasurer, Walter J. Smith; Attorney-General, George T. Simpson; Adjutant-General, Fred B. Wood; Superintendent of Education, C. G. Schultz; Commissioner of Insurance, J. A. Preus; Commissioner of Agriculture, George Welsh—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Charles M. Start, Republican; Associate Justices, Calvin L. Brown, Republican, C. L. Brunn, Democrat, P. E. Brown, Republican, David F. Simpson, Republican, Clerk, I. A. Caswell, Republican.

STATE LEGISLATURE, 1911. Republicans, Senate, 42; House, 89; joint ballot, 131; Democrats, Senate, 19; House, 26; joint ballot, 45; Independent, Senate, 2; House, 5; joint ballot, 7. Republican majority, Senate, 21; House, 58; joint ballot, 79.

The representatives in Congress will be found in the article *UNITED STATES*, section *Congress*.

MINNESOTA, UNIVERSITY OF. An institution of higher learning at Minneapolis, Minn., founded in 1869. The college and school of

agriculture are in the city limits of St. Paul. The university maintains agricultural schools at Morris and Crookston, experimental farms at Grand Rapids and Duluth, and forestry stations at Itasca and Cloquet. The total attendance in the collegiate departments of the university in 1910-11 was 3227; in the professional departments, 929; and the secondary schools, 1868, making a total of 6024. In the collegiate department the distribution was as follows: College of Science, Literature and Arts, 1621; College of Engineering, 415; College of Agriculture, 425; College of Education, 94; School of Chemistry, 73; School of Mines, 105; Graduate School, 131; Summer School, College Section, 363. The students in the professional schools were distributed as follows: College of Law, 442; College of Medicine and Surgery, 191; College of Dentistry, 206; College of Pharmacy, 90. On April 1, 1911, Cyrus Northrop, president, whose resignation had been handed in two years before to take effect whenever his successor should be chosen, retired, and George Edgar Vincent, Ph. D., LL. D. (q. v.) was unanimously chosen his successor. The university lost by death during the year Dean W. S. Pattee of the College of Law, and Prof. C. W. Hall, head of the department of geology. William Reynolds Vance of Yale University succeeded Dean Pattee as head of the College of Law, and Dr. William Harvey Emmons of Chicago University was elected to succeed Professor Hall. Among the benefactions received during the year was one of \$60,000 from Hon. Thomas H. Shevlin of Minneapolis. Of this \$40,000 is to be used for the establishment of four fellowships in the Graduate School. During the last three years the university has expended \$840,000 in enlarging its campus. There have recently been erected a hospital, costing \$200,000, and two women's dormitories, at \$50,000 and \$25,000 respectively. Four other buildings, the main engineering building, to cost \$200,000, the experimental engineering building, to cost \$125,000; the general medical building, to cost \$200,000, and the anatomical and histological building, to cost \$200,000, are in progress of erection. The permanent fund of the institution amounts to \$1,448,798. Its income amounts to \$1,410,000. The library contains about 150,000 volumes.

MIQUELON. See ST. PIERRE.

MISSISSIPPI. POPULATION. The Thirteenth Census, taken in 1900, showed a population in the State in that year of 1,797,114, as compared with 1,551,275 in 1900, an increase of 245,844, or 15.8 per cent. in the decade. The principal cities with their population in 1910 and 1900 are as follows. The figures in parentheses are for 1900: Meridian, 23,285 (14,054); Vicksburg, 20,814 (14,834); Natchez, 11,791 (12,210); Hattiesburg, 11,733 (4175).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 274,382, compared with 220,803 in 1900. The land in farms was 18,557,533 acres, compared with 18,240,736 in 1900. The improved land in farms was 9,008,310 acres, compared with 7,594,028 in 1900. The average acreage per farm was 67.7, compared with 82.6 in 1900. The value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$426,314,634, compared with \$204,221,027 in 1900. The average value of all property per farm was

\$1554, compared with \$925 in 1900. The average value of land per acre was \$13.69 (\$6.30 in 1900). Of the total number of farms, 92,891 were operated by owners and managers, 181,491 by tenants. Of the farms operated by owners, those free from mortgage numbered 60,543; under mortgage, 29,693. The native white farmers numbered 108,909; foreign-born whites, 736; negro and other non-white, 164,737. The value of the various kinds of domestic animals, poultry, and bees in 1910 was \$75,247,033, compared with \$42,657,222 in 1900. The cattle numbered 1,012,632, valued at \$15,269,364; horses and colts 216,220, valued at \$20,303,851; mules, 255,760, valued at \$32,028,421; swine, 1,292,119, valued at \$94,913,166; sheep, 195,245, valued at \$416,716. The poultry of all kinds numbered 5,070,116, valued at \$1,346,751. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

		Acreage	Prod., bu.	Value
Corn	.....1911	2,850,000	54,150,000	\$38,988,000
	.....1910	2,590,000	53,095,000	38,450,000
Wheat	.....1911	9,000	108,000	108,000
	.....1910	5,000	70,000	81,000
Oats	.....1911	130,000	2,392,000	1,555,000
	.....1910	120,000	2,304,000	1,267,000
Rice	.....1911	2,100	76,000	59,000
	.....1910	2,800	84,000	59,000
Potatoes	.....1911	9,000	747,000	859,000
	.....1910	9,000	765,000	719,000
Hay	.....1911	100,000	a 150,000	1,650,000
	.....1910	100,000	142,000	1,732,000
Cotton	...1911		c 1,195,000	

a Tons. c Bales.

MINERAL PRODUCTION. The mineral products of the State in 1910 were valued at \$840,152. Of this, clay products were valued at \$632,997; sand and gravel, \$159,482; mineral waters, \$43,975; other products, \$3696.

POLITICS AND GOVERNMENT

The State legislature did not meet in 1911, as the sessions are biennial, and the last was held in 1910. The chief event of political importance and interest in the State during the year was the primaries held for the nomination of United States senator, State, and county officers. The term of Senator Percy, elected in 1910 to fill out the term of Senator A. J. McLaurin, deceased, expires in March, 1913. He was a candidate for reelection at the primaries. His chief opponent was James K. Vardaman, former governor of the State, whom he had defeated before in the legislature. The campaign for the primary nomination was bitterly fought out by both candidates. Mr. Vardaman, during his term as governor, achieved a national celebrity by his utterances against negroes. Mr. Vardaman received a large majority of the votes cast.

In 1910 Theodore Bilbo, a State senator, went before the grand jury and lodged information that he had been paid a bribe for his vote. At the time of the election of Senator Percy in February, 1910, as the result of his statement L. C. Dulaney was indicted. Senator Percy at once went before the legislature and demanded an investigation. At its conclusion a supporter of Vardaman offered a resolution of absolute exoneration, which was unanimously adopted. Another resolution in the Senate for

Bilbo's expulsion for perjury only lacked one vote of a two-thirds majority. Immediately after the election in August, 1911, Senator Percy in a card announced that he would resign in January unless the campaign abusiveness was so continued that he would feel compelled by self respect to serve out his term. In a personal privilege speech in the Senate December 11 Senator Percy replied to attacks made upon him in magazine articles and speeches. He challenged a partisan State legislature to an investigation of the charges against himself and the legislature that had elected him, and recalled his expressed intention of resigning.

In November papers were filed at Jackson in a suit brought by the commonwealth against Senator-elect Vardaman, alleging misuse of public moneys. The suit was brought in behalf of the attorney for the State. Its object was to compel an accounting with respect to the contingent fund of the State, the Spanish-American War fund, and other public moneys, alleged to have been received by Mr. Vardaman during his term of office as governor, 1904-1908, and also to recover interest on certain State bonds, sold in 1906 and antedated. It was also alleged in complaint that Mr. Vardaman had made overcharges in connection with his visits to State institutions, and that the State moneys were combined with his private funds during his term of office. The suit in relation to these charges was pending at the end of the year.

A large majority of the legislature and some of the State officers were elected on this senatorial issue. The governor, Earl Brewer, was not, as he had no opposition.

OTHER EVENTS. An industrial movement of significance in the year's annals of the State was the adoption of a colonization policy by some of the large lumber companies, which had bought up pine lands in northeast Mississippi years ago. Having cleared large tracts of this timber, they now prepared to settle the "cut over" lands with "small farmers" from the North and from Europe. Settlements have already been effected under favorable auspices and will probably tend to important and beneficial changes in this pine land section.

The most serious labor strike that ever occurred in the State was called by the machinists and boilermakers' unions, after the Harriman line railroads, including the Illinois Central and the Yazoo & Mississippi Valley had refused federation recognition.

The men walked out of the shops at Vicksburg, McComb City, and Water Valley with remarkable alacrity and unanimity in September. Although they alleged no grievance as to wages, time of labor, or anything affecting their personal interests, many surrendered pension claims, in some cases where they had almost been earned. The introduction of other labor was violently resisted, especially at McComb, where nearly a thousand men went on strike. Several hundred of the State National Guard were stationed at McComb, with a smaller body at Water Valley. Deputy United States marshals were also stationed at these points to enforce a federal injunction against interference with railroad employees and operations. In Vicksburg the local authorities dealt with the troubles, but not with the best results, the shop men not daring to leave the shops without risk of assault. Though the strike proved fruitless,

the men were still out at the end of the year, under orders of the federation, without hope of winning the contest. The conduct of the militia, both men and officers, was most creditable during their long and trying garrison duty at McComb and Water Valley.

STATE OFFICERS. Governor, Earl Brewer; Lieutenant-Governor, Theodore G. Bilbo; Secretary of State, J. W. Power; Treasurer, P. S. Stovall; Auditor, D. L. Thompson; Superintendent of Education, J. N. Powers; Attorney-General, Ross A. Collins; Adjutant-General, Arthur Fridge; Land Commissioner, M. A. Brown; Commissioner of Agriculture, H. E. Blakeslee; Commissioner of Insurance, T. M. Henry—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Robert B. Mayes; Associate Justices, Sydney Smith and William C. McLean; Commissioners, Albert H. Whitfield and Frank A. McLean; Clerk, George C. Myers—all Democrats.

STATE LEGISLATURE, 1912. The State legislature is wholly Democratic.

The representatives in Congress will be found in the article UNITED STATES, Congress.

MISSISSIPPI VALLEY, DRAINAGE OF. See DRAINAGE.

MISSOURI POPULATION. The Thirteenth Census, taken in 1910, showed the population of the State in that year as 3,392,335, as compared with 3,106,665 in 1900, an increase of 186,670, or 6 per cent. in the decade. The principal cities, with their population in 1910 and 1900, are as follows (the figures in parentheses are for 1900); St. Louis, 687,029; (575,238); Kansas City, 248,361 (165,752); Hannibal, 18,341 (12,780); Joplin, 32,073 (26,023); Sedalia, 17,822 (15,231).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 277,244, as compared with 284,886 in 1900, a decrease of 7642. The land in farms was 34,591,248 acres, as compared with 33,997,873 in 1900. The improved land in farms was 24,581,186, compared with 22,900,043 in 1900. The average acreage per farm was 124.8, compared with 119.3 in 1900. The value of all farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$2,052,917,488, as compared with \$1,033,121,897 in 1900, an increase of 98.7 per cent. The average value of all property per farm was \$7405, as compared with a value of \$3626 in 1900. The average value of land per acre was \$41.80 (\$20.46 in 1900). Of the 277,244 farms in the State, 194,286 were operated by owners and managers, and 82,958 by tenants. Of the farms operated by owners, those free from mortgage numbered 102,514; those under mortgage, 88,486. The native white farmers numbered 259,111; foreign-born whites, 14,467; negroes and other non-whites, 3666. Of the non-whites all excepting 9 Indians and 1 Japanese were negroes. The value of the various kind of domestic animals, poultry, and bees in 1910 was \$285,839,108, as compared with a value of \$160,540,004 in 1900. The cattle numbered 2,561,482, valued at \$72,883,664; horses and colts, 1,073,387, valued at \$113,976,563; mules, 342,700, valued at \$43,438,702; swine, 4,438,194, valued at \$31,937,573; sheep and lambs, 1,811,268, valued at \$7,888,828; poultry of all kinds numbered 20,-

897,208, valued at \$11,870,972. The acreage, production, and value of the principal crops will be found in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	7,400,000	192,400,000	\$115,440,000
1910	7,500,000	247,500,000	108,900,000
Wheat ....1911	2,300,000	36,110,000	31,777,000
1910	1,881,000	25,958,000	22,583,000
Oats .....1911	1,200,000	17,760,000	7,992,000
1910	1,200,000	40,320,000	12,902,000
Rye .....1911	16,000	226,000	190,000
1910	18,000	270,000	202,000
Potatoes ..1911	95,000	2,565,000	2,618,000
1910	100,000	8,600,000	5,848,000
Hay .....1911	2,430,000	a 1,468,000	19,391,000
1910	2,700,000	3,510,000	32,292,000
Tobacco ..1911	6,000	b 4,800,000	576,000
1910	8,000	8,400,000	1,008,000

a Tons. b Pounds.

MINERAL PRODUCTION. The total mineral products of the State in 1910 were valued at \$52,640,054. Of this, the lead produced was valued at \$14,225,992; zinc, \$15,190,416; clay products, \$7,087,766; coal, \$5,328,285. Other important products are sand and gravel, stone and glass-sand.

The production of coal in 1910 was 2,982,433 short tons, compared with 3,756,530 short tons in 1909, a decrease of about 20 per cent. This was due to the strike which began on April 1, and was not officially ended until September 15. The total number of men employed in the coal mines of the State during the year was 9691. Of these 7774 were on strike.

The iron ore mined in the State in 1910 amounted to 78,341 tons, valued at 168,697 (\$89,954 tons, valued at \$210,853, in 1909).

FINANCE. The report of the State treasurer for the year 1910 showed a balance at the end of the year of \$1,403,648. The receipts for the year amounted to \$10,005,610, and there was a balance in the treasury on January 1, 1911, of \$200,557.

EDUCATION. The total number of pupils of school age in the State was 1,003,434. Of these 960,535 were white. The total enrollment was 707,031. The teachers employed numbered 18,365, of whom 17,582 were white. The annual salary for male teachers was \$543.93; for female teachers, \$406.55. The total expenditure for schools during the year was \$13,905,188.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the State hospitals, School for the Blind, School for the Deaf and Dumb, Industrial Home for Girls, Missouri State Sanitarium, and a colony for feeble-minded.

POLITICS AND GOVERNMENT

The State legislature met in 1911, and the most important measures enacted are noted in the paragraph *Legislation* below. On January 17 James A. Reed was elected United States senator by the legislature to succeed Senator Warren, whose term had expired. Senator Reed was the successful candidate in the Democratic primaries of 1910, defeating David R. Frances for the nomination. The action of the legislature was therefore in ratification of the votes of the people. There were no State elections during the year.

On January 9 the Supreme Court of the United States, in an opinion written by Associate Justice Harlan, upheld the constitutional-

ity of the statute of the State of Missouri making it a misdemeanor for a broker to deduct from the actual weight of grain, seed, hay, or coal or any other articles for sale for alleged loss in dirt or handling. The statute was passed in 1909. At the same time the court upheld the constitutionality of the State law imposing a stamp tax on board of trade transactions.

LEGISLATION. The important measures passed at the legislative session of 1911 included the following: The proposed amendment to the Constitution of the United States, giving Congress the power to levy and collect taxes on incomes was ratified and assented to. Two important measures relating to convicts in prisons were passed. One of these provides for the partial support of poor women whose husbands are dead or convicts, when such women are the mothers of children under the age of fourteen, and reside in counties having not less than 250,000 inhabitants and not more than 500,000 inhabitants, and now or hereafter having a juvenile court. The second act abolished the letting, farming out, or selling in any manner by contract convict labor in the penitentiary of the State and provides for the employment of the convicts in the making of supplies and products to be disposed of to the State or any political subdivision thereof, or to any public institution owned or controlled by the State or any political subdivision thereof. It provides also for the employment of convicts not to exceed 300 upon the public road, and takes steps for a gradual change in the system of using convict labor. Public tuberculosis hospital districts are created and provision is made for the establishment and maintenance of public tuberculosis hospitals and dispensaries. The employment of children under fourteen years of age is prohibited, with the exception of agricultural pursuits and domestic service. The employment of children between fourteen and sixteen years of age is regulated by this act. (See *CHILD LABOR*.) All corporations are required to pay their employees as often as semi-monthly. The juvenile court system is extended to smaller counties. An act was passed making untruthful statements derogatory to a bank, trust company, or other financial institution punishable by a fine not exceeding \$1000, or imprisonment not exceeding one year, or both. Intoxicated persons are prohibited, under punishment of a fine, from entering a schoolhouse or church. In all primary elections the names of the candidates are required to be arranged so that by equal rotation each candidate's name shall in turn head the list. Cities having over 500,000 inhabitants are authorized to create a board of child guardians, with power to manage public institutions for the care of delinquent, defective, and dependent children, and to place such children in institutions or with families.

STATE OFFICERS. Governor, Herbert S. Hadley; Lieutenant-Governor, J. F. Gmelich; Secretary of State, Cornelius Roach; Auditor, John P. Gordon; Treasurer, James Cowgill; Attorney-General, Elliott W. Major; Superintendent of Education, William P. Evans; Adjutant-General, F. M. Rumbold; Commissioner of Insurance, Frank Blake—all Democrats except Hadley, Gmelich, Rumbold, Blake, and Evans, Republicans.

JUDICIARY. Supreme Court: Chief Justice, Leroy B. Valliant, Democrat; Associate Justices, Henry Lamm, Republican; Walter W. Graves, Democrat; Franklin Ferriss, Republican; A. M. Woodson, Democrat; John Kennish, Republican; John C. Brown, Republican; Clerk, J. D. Allen, Democrat.

STATE LEGISLATURE, 1912. Democrats, Senate, 22; House, 82; joint ballot, 104. Republicans, Senate, 12; House, 60; joint ballot, 72. Democratic majority, Senate, 10; House, 22; joint ballot, 32.

The representatives in Congress will be found in the article UNITED STATES, section Congress.

MISSOURI, UNIVERSITY OF. An institution of higher learning at Columbia, Mo., founded in 1839. The students enrolled in the various departments of the university, including the School of Mines, in the year 1910-11 was 3114. The members of the faculty of regular teaching grade numbered 259. During the year 1910-11 chairs of preventive medicine, forestry, and poultry husbandry were established at the university, together with a special course for women leading to the regular bachelor of science degree in agriculture. New chairs were also added in political science, economics, and Latin. A veterinary building, at a cost of \$32,500, has been completed at Columbia, and a new wing has been added to the ore dressing building at the School of Mines. A unique departure is the adoption of a rule that no student having less than twenty-four hours credit toward graduation can become a member of any fraternity or sorority, or live in any fraternity or sorority chapter house. Among the additions to the faculty were the following: Walter Miller was appointed professor of Latin; J. A. Ferguson of the Yale Forestry School was made the head of the newly established chair of forestry; R. H. Baker, formerly of Brown University, was appointed assistant professor of astronomy and director of the Laws Observatory; G. S. Dodds was appointed instructor in zoölogy. The productive funds of the university amounted to \$1,258,839, and the total income to about \$850,000. The larger portion of this was appropriated by the State. Beginning with the autumn of 1911, two years of college work in addition to a four-years high school course or its equivalent are required for entrance to all departments except the College of Arts and Sciences and the College of Agriculture. The library contains about 110,000 volumes. The president is Albert R. Hill, LL. D.

MITCHELSON, JOSEPH C. An American tobacco grower and numismatist, died September 27, 1911. He was born in 1855. Although he was known as the first man in the United States to take up scientific tobacco growing on an extensive scale, he was more widely famous as a keen collector of coins, and was one of the foremost authorities on this subject. His collection of United States coins and presidential medals is said to have been the most complete in existence. His collection, valued at \$100,000, has become a permanent exhibit at the Connecticut State Library at Hartford. Mr. Mitchelson was twice made a member of the Assay Commission and he was the first American to become a member of the British Numismatic Society. He was also a member of the American Numismatic Society and of many other scientific and social organizations. As a tobacco grower he was the first

to employ the services of an expert and to take up the scientific growing of tobacco. His crops were all raised under cheese cloth and he adopted and perfected the now approved method of nipping off poor and immature leaves so as to get a perfect uniformity in leaf growth. He discovered that rocky land and apparently poor soil is as good as more costly land for tobacco raising.

MITCHELL, S. WEIR. See LITERATURE, ENGLISH AND AMERICAN, Fiction.

MOBILE. See ALABAMA.

MOFFAT, DAVID HALLIDAY. An American banker and railroad builder, died March 18, 1911. He was born in 1839 in Orange county, N. Y. He was educated in the public schools with some instruction from a private tutor. At fifteen years of age he went to New York City, where he secured a position in a bank. He was successively promoted until he became assistant teller. In 1855 he went to Iowa, where he obtained a position in a bank in Des Moines. He left this to accept a position as cashier in the Bank of Nebraska. Hearing stories of the finding of gold in Colorado in 1860 he started in a prairie schooner for that State. Arriving at Denver, he established a book-selling firm under the name Moffat & Woolworth. He prospered in business, and in the meantime made a great deal of money by buying gold bullion to ship East. At the end of the Civil War the First National Bank had been established in Denver, and Moffat was, two years after its founding, made cashier. He became its president and continued in this office until the time of his death. The bank is, at the present time, the richest in Colorado. In the late seventies he entered the mining field and acquired mining properties until he was the owner of several of the richest mines in Colorado. It was said that he was interested in nearly one hundred mines and had holdings in nearly every mining camp in the State. He was best known, however, as a railroad builder. He built as an independent enterprise the Denver Northwestern Pacific Railroad, which is known as the Moffat Road. He also coöperated in the building of the Denver Pacific in 1869. He was president of the Denver & Rio Grande Railroad until 1891. He built also the Denver & South Park Railroad. He was a director of the Equitable Life Assurance Society and of several financial institutions in New York City. He was at the time of his death one of the wealthiest financiers of the country.

MOHAMMED ALI. See PERSIA.

MOLTKE. See BATTLESHIPS.

MOLLUSKS. See ZOÖLOGY.

MONACO. A Mediterranean principality 3 miles long by 1½ broad. Population 19,121; yearly average of visitors, 1,250,000. The town of Monaco has 2410 inhabitants; La Condamine, 6218; Monte Carlo, 3794. Reiging prince, Albert, born November 13, 1848. Heir-apparent, Prince Louis, born July 12, 1870. The new constitution, drawn up by three French jurists, was promulgated January 7, 1911. It provides for a national council of twenty-one members, elected by universal suffrage every four years. The prince as executive acts through a ministry, assisted by a council of state. The three communes into which the principality is divided are governed by municipal bodies in whose election women participate.

MONARCH. See **BATTLESHIPS.****MONETARY COMMISSION.** NATIONAL.

This commission, which consisted of nine Senators and nine Representatives, with ex-Senator Aldrich of Rhode Island as chairman, was authorized by the Aldrich-Vreeland Emergency Currency act of 1908. It carried on a most elaborate and thoroughgoing investigation into the banking and currency methods and organization in all principal countries. On the basis of these investigations it issued numerous reports and studies forming a complete library of money and banking. Considerable dissatisfaction developed, however, on account of the slowness with which the commission formulated a plan for legislation. On August 20, 1911, Congress passed the Cummins bill providing for the disestablishment of the commission. It was required to submit a full and comprehensive report not later than January 8, 1912, and its existence was to terminate March 1, thereafter. The salaries of members and of government employees serving the commission were terminated at once. Previous to this time the chairman of the commission had presented for public discussion a plan of banking reorganization, generally known as the Aldrich plan, providing for the formation of a national reserve association. Immediately after the passage of the Cummins bill the commission arranged for a series of hearings on this plan. It also appointed a subcommittee to formulate a bill. It was understood that this bill would incorporate the Aldrich plan with possible minor changes. No legislation was anticipated in 1912, however, owing to the far-reaching importance of the plan of reform and the necessity of a long campaign of education. Moreover, an investigation into the so-called Money Trust was about to be ordered by the House at the close of the year. (See **TRUSTS.**) In addition the country was not satisfied that sufficient safeguards had been made against Wall Street control of the national reserve association through the ownership of stock of one bank by another. See section on *National Banks and Trust Companies* under **NATIONAL BANKS.** For a statement of the *Aldrich Plan* see *Banking Reform* under **BANKS AND BANKING.**

MONEY. According to data compiled by the Director of the Mint the following amounts of money existed in forty-six principal countries of the world, including dependencies of the British empire, France, and Holland: Gold, \$6,604,000,000; silver, \$2,599,000,000; and uncovered paper currency, \$3,127,600,000. The amount per capita for all of these states was: Gold, \$6.40; silver, \$2.53; and uncovered paper currency, \$3.02, or an aggregate of \$11.95. The United States, Russia, France, the United Kingdom, Austria-Hungary, and Italy held 71 per cent. of the total stock of gold, the United States, with \$1,710,000,000, or 26 per cent. of the total, having the largest amount, and Italy, with \$264,100,000 having the least amount. These same countries hold 57 per cent. of the stock of silver, the United States with \$729,500,000 or 28 per cent. of the total being the greatest amount, and France, with \$411,100,000, or about 16 per cent., the next greatest amount. These six countries held 46 per cent. of the uncovered paper currency, the United States, with \$786,600,000, or about 35 per cent. of the total. Ranking first, and France, with \$223,000,000, ranking second. The per capita stock of metallic and

paper money was greatest in France—\$39.71; in the United States the per capita amount was \$34.59; in the United Kingdom, \$17.38; in Italy, \$13.88; and in the Austro-Hungarian monarchy, only \$12.47.

For national bank circulation see **NATIONAL BANKS**; see also *Banking Reform* under **BANKS AND BANKING.**

MONEY ORDER SYSTEM, BANK. See **BANKS AND BANKING.**

MONGOLIA. See **CHINESE EMPIRE.**

MOINIER, General. See **MOROCCO.** *History.*

MÓNIS, M. See **FRANCE.**

MONOPLANE. See **AERONAUTICS.**

MONTANA. POPULATION. The Thirteenth Census, taken in 1910, showed a population in the State in that year of 376,053, as compared with 243,329 in 1900, an increase of 132,724, or 54.5 per cent. The principal cities, with their population in 1910 and 1900, are as follows (the figures in parentheses are for 1900): Butte, 39,165 (30,470); Great Falls, 13,948 (14,930); Missoula, 12,869 (4366); Helena, 12,515 (10,770); Anaconda, 10,134 (9453).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These figures are of date of April 15, 1910. On that date the number of farms in the State was 26,214, compared with 13,370 in 1900. The land in farms was 13,545,603 acres. The improved land in farms was 3,640,309 acres. The average acreage per farm was 516.7. The total value of farm property, including land, buildings, implements and machinery, domestic animals, poultry and bees, was \$347,828,770. Of the 26,214 farms 23,870 were operated by owners and managers and 2344 by tenants. Of the farms operated by owners, those free from mortgage numbered 18,014; mortgaged, 4820. The native white farmers numbered 18,165; foreign-born white, 6853, and negro and other non-white, 1196. Of the non-white farmers, 1146 were Indians. The value of the various kinds of domestic animals, and of poultry and bees in 1910 was \$85,663,187, as compared with a value of \$52,161,833 in 1900. The cattle numbered 943,147, valued at \$27,474,122; horses and colts, 315,956, valued at \$27,115,764; mules, 4174, valued at \$445,278; swine, 99,261, valued at \$858,829; sheep and lambs, 5,380,746, valued at \$29,028,069. The poultry of all kinds numbered 966,690, valued at \$628,436. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

		Acreage	Prod., bu.	Value
Corn	1911	20,000	530,000	\$424,000
	1910	16,000	368,000	350,000
Wheat	1911	429,000	12,299,000	9,470,000
	1910	350,000	7,700,000	6,622,000
Oats	1911	425,000	21,165,000	8,466,000
	1910	390,000	14,820,000	6,817,000
Rye	1911	8,000	184,000	132,000
	1910	6,000	120,000	82,000
Potatoes ..	1911	27,000	4,050,000	2,997,000
	1910	22,000	2,640,000	2,244,000
Hay	1911	612,000	a 1,224,000	12,240,000
	1910	600,000	840,000	10,500,000

a Tons.

MINERAL PRODUCTION. The mineral products of the State in 1910 were valued at \$54,388,117. Of this, the copper produced was valued at \$35,950,966; gold, \$3,720,400; silver, \$6,632,700; coal, \$5,329,322; lead, \$147,520; zinc, \$1,340,064.

The State ranks second in the production of

copper, being surpassed only by Arizona. The output in 1910 was 283,078,473 pounds, as compared with 314,858,291 pounds in 1909. The production of the metal in the State has steadily increased since 1880. In total production since the beginning of mining the State ranks first. The reduction works at Anaconda and Great Falls treated 4,337,688 tons of ore and other cupriferous material yielding 266,608,461 pounds of copper, 9,534,888 ounces of silver, and 57,259 ounces of gold.

The copper production in 1911 fell about 10,000,000 tons short of the output for 1910. This decrease was due to the policy of curtailment adopted by the companies in the Butte district. Extensive developments were carried on in this district, and special attention was given to improving the mine equipment of the units composing the Anaconda Copper Company. These improvements are expected to reduce materially the cost of producing copper.

The coal production of the State in 1910 was 2,920,970 short tons, valued at \$5,329,322. This was the greatest amount of coal ever produced in the State in any one year. There were employed in the coal mines of the State 3817 men.

The State is a large producer of gold and silver. The production of gold in 1910 was 179,975 fine ounces, valued at \$3,720,400. This was a slight increase over the output for 1909. The decrease was in the output from dry or siliceous and coppers ores. The production from placer, lead, and zinc, and copper-lead ores increased. The output of silver in 1910 was 12,162,857 fine ounces, valued at \$6,632,700. In 1911 the production of gold was 153,341 fine ounces, valued at \$3,169,840. The silver produced in 1911 was 11,116,778 fine ounces, valued at \$6,114,228. Montana ranks second to Utah among the States in the production of silver.

MANUFACTURES The Thirteenth Census included statistics of manufactures in the State. These figures cover the calendar year 1909. The chief results of the census will be found summarized in the table below. It will be seen from this that there was a great increase in the number of establishments during the five-year period 1904-1909. Although the State is not relatively important as a manufacturing community, manufactures have shown on the whole a considerable increase. The principal industries of the State are mining, agriculture, and stock-raising, and the principal manufacturing industries are those supplemental to its mining interests. The largest number of persons employed in a single industry are those connected with lumber and timber products. In these industries 3106 persons were engaged. In these industries also the largest amount of capital was invested, \$6,334,000. Next in point of number are the industries related to cars and general shop construction and repair by steam railroad companies, employing 1913 persons. In the manufacture of malt liquors 246 persons were employed, with a capital of \$2,440,000; flour and grist-mill products, 105, with a capital of \$2,175,000; printing and publishing, 691 persons, with a capital of \$2,111,000; in slaughtering and meat-packing, 105, with a capital of \$2,054,000; in bread and other bakery products, 214 persons, with a capital of \$1,096,000. Of the 13,694 persons engaged in manufactures, 13,387 were male and 307 female. The persons employed under 16 years of age numbered over 30. For the great majority of the wage earners

employed in the manufacturing industries of the State the hours of labor ranged from 54 to 60 hours per week, or from 9 to 10 hours per day. The following table gives the number of establishments and persons engaged, amounts involved (1909 and 1910), and the per cent. of increase, 1904-1909:

	1909	1904	P.C.
Number of establishments	677	382	77.2
Persons engaged in manufactures	13,694	10,196	34.3
Proprietors and firm members...	659	334	97.3
Salaried employees...	1,380	905	52.5
Wage earners (average number)...	11,655	8,957	30.1
Primary horsepower.	90,402	46,736	93.4
Capital	\$44,588,000	\$52,590,000	-15.2
Expenses	66,830,000	55,140,000	21.2
Services	12,955,000	10,168,000	27.5
Salaries	2,054,000	1,506,000	36.4
Wages	10,901,000	8,652,000	26.0
Materials	49,180,000	40,930,000	20.2
Miscellaneous	4,695,000	4,052,000	15.3
Value of products...	73,272,000	66,415,000	10.3
Value added by manufacture (value of products less cost of materials).	24,092,000	25,485,000	-5.5

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State included the State Prison at Deer Lodge, the State Reform School at Miles City, a home for orphans, foundlings, and destitute children at Twin Bridges, a soldiers' home at Columbia Falls, the State Hospital for the Insane at Warm Springs, and the State School for the Deaf and Blind and Feeble-minded at Boulder. These are all under the supervision of the State Board of Charities and Reform.

POLITICS AND GOVERNMENT

The chief political event in the history of the State during the year was the attempt, finally successful, to elect a United States senator to succeed Thomas H. Carter. After a deadlock, which lasted from early in January to March 2, Henry L. Myers, judge of the District Court of Ravalli county, was elected. The legislature was Democratic as a result of the 1910 elections. The Republican votes were cast for Senator Carter.

LEGISLATION. The important measures passed at the legislative session of 1911 included the following: A stringent white slave law; an act imposing liability upon railroads for injuries sustained by employees, the provisions being similar to those of the federal act on the same subject; an act fixing the rate of interest which may be charged to wage earners; an act authorizing municipalities to adopt the commission form of government; an act to improve the ventilation and sanitary conditions of mines; an act making further provision for the conservation of State lands; an act regulating coal mining; an act establishing juvenile courts and prescribing procedure against juvenile delinquents; an act establishing a tuberculosis sanitarium; a pure food law; a joint resolution approving the income tax amendment to the constitution; a joint resolution asking for the convocation of a convention to propose an amendment to the Constitution of the United States which shall provide for the election of senators by a direct vote of the people. An important measure was also passed in relation to the

election of United States senators. This provides that political factions shall make nominations for United States senators at the same time and in the same manner as nominations are made for State officers; that each candidate for member of the legislature may sign and file with the county clerk a certificate to the effect that if elected he will vote for that candidate who has the greatest number of votes at the general election, regardless of political affiliations, or a certificate to the effect that if elected he will regard the popular vote as merely in the nature of a recommendation, practically statement No. 1 and statement No. 2 of the Oregon act; that the party candidates for United States senator shall find a place upon the official ballot of the general election with other candidates to be elected thereat, the votes for these candidates to be canvassed and returned in the same manner as is provided for other candidates.

STATE OFFICERS: Governor, Edwin L. Norris, Dem.; Lieutenant-Governor, William R. Allen, Rep.; Secretary of State, T. M. Swindlehurst, Dem.; Treasurer, Elmer E. Esselstyn, Rep.; Auditor, H. R. Cunningham, Rep.; Attorney-General, A. J. Galen, Rep.; Adjutant-General, Philip Greenan, Dem.; Superintendent of Education, W. E. Harmon, Rep.; Commissioner of Agriculture, J. H. Hall, Dem.

JUDICIARY: Supreme Court: Chief Justice, Theo. Brantley, Rep.; Justices, Henry C. Smith, Rep.; Wm. L. Holloway, Rep.; Clerk, John T. Athey, Rep.

STATE LEGISLATURE, 1911: Senate, Republicans, 16; Democrats, 12; House, Republicans, 32; Democrats, 42; joint ballot, Republicans, 48; Democrats, 54; Republican majority, Senate, 4; Democrats, House, 10; joint ballot, Democrats, 6.

The representatives in Congress will be found in the article UNITED STATES, Congress.

MONT CENIS TUNNEL. See SWITZERLAND. *Communications.*

MONTENEGRO. One of the Balkan states; a hereditary constitutional monarchy. Area, 34,86 sq. miles; population, about 225,000 (Muslimans, 13,000; Roman Catholics, 14,000; remainder, Eastern Church). Capital, Cetinje (5000 civil, 600 military population). Agriculture and stock-raising are the principal industries. Corn, oats, barley, buckwheat, potatoes, and tobacco are raised. The uplands are heavily forested. Imports 1909, 6,181,369 kronen (salt from Turkey, petroleum from Russia, cereals, hardware, sugar, coffee, etc.); exports, 2,435,550 (sumac, pyrethrum, smoked sardines, animals and animal products, olive oil, wine, tobacco, etc.). Miles of railway, 11; of telegraph lines, 528; offices, 23; post offices, 21. The estimated revenue and expenditure balanced (1910) at 3,423,847 perspers, or £142,660. Public debt (1910), £250,000.

The army of Montenegro is a militia in which every male inhabitant of the state is liable for service from his 18th to his 62d year, with this time divided between various forms of service from the recruit class to the reserve. The king is the commander-in-chief of the army, which is under the actual command of the prince royal. It is organized in 4 divisions of infantry, and a brigade of artillery, the headquarters of which are located at Cetinje, Podgoritz, Niksitch, and Kolashine. Three of the divisions are made up of 3 brigades and one of 2 brigades, with a total of 57

battalions. Twelve batteries form a brigade of artillery. The total war strength of the kingdom was estimated at between 30,000 and 50,000 men. The military forces do not form an army in the sense of being a drilled and armed body of troops, according to European standards, but a certain number of armed men can be mobilized in time of war and every male inhabitant may be called to arms. There were various organizations of cavalry and field artillery, the latter provided with modern guns, and infantry armed with Mauser rifles, the total strength being estimated at about 30,000 men of arms. A certain number of French and Spanish officers have served as instructors of the police organization, which is said to comprise about 2500 men.

Reigning king, Nicholas, born October 7 (September 25), 1841. Prime minister, minister of justice and of foreign affairs (1911), Dr. L. Tomanovitch.

The main feature of the year's history was the friction with Turkey in the course of the Albanian revolt. Montenegrin sympathy with the insurgent Malissori on the border led to threats of retaliation by Turkey, and King Nicholas appealed to the powers for protection. It was largely through his intercessions for the Malissori that Turkey made peace with them in August. For details, see TURKEY, paragraphs on *Albanian Revolt* under *History*.

MONTESSORI SYSTEM. See EDUCATION.

MOORE, GEORGE. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

MORAN, PATRICK FRANCIS. A Roman Catholic cardinal and archbishop of Sydney, died August 16, 1911. He was born at Leighlin-bridge, County Carlow, Ireland, in 1830. He was admitted to the Irish College of St. Agatha at Rome and was ordained by special dispensation as to age in 1853. He was for some time vice-president of the Irish College and professor of Hebrew in the College of the Propaganda in Rome. He returned to Ireland as private secretary to his uncle, Cardinal Cullen. From 1874 to 1884 he was professor of Hebrew and Scripture at Clonliffe College, Dublin. He had previously been appointed Bishop of Ossory. He went to Sydney, Australia, in 1884 as archbishop of Sydney. In the following year he was appointed first Australian cardinal. During his residence in Rome he made a special study of Celtic ecclesiastical history and was a leading antiquarian authority. Among his published works are *Essays on the Origin, etc., of the Irish Church* (1863); *History of the Catholic Archbishops of London* (1864); *Historical Sketch of the Persecutions under Cromwell and the Puritans* (1865); *Irish Saints in Great Britain* (1879); *Letters on the Anglican Reformation* (1890); *History of the Catholic Church in Australasia* (1894); and *Reunion of Christendom and its Critics* (1896).

MORANT CAYS. See JAMAICA.

MORAVIANS, called also The United Brethren (*Unitas Fratrum*), and the Moravian Church. An evangelical denomination which began among the followers of John Huss in Bohemia and Moravia in 1457. It was first established in the United States in 1735. The Moravians of North America had, at the beginning of 1911, 18,561 communicants, of whom the American Moravian Church, North, included 14,333, and the American Moravian Church, South, 4228. There were 123 churches and 143

ministers. In the Northern Province there were 42 missionary societies, with a membership of 3570. In the Sunday schools of the denomination there were at the beginning of 1911, 15,411 scholars and 1539 officers and teachers. The denomination maintains funds for retired ministers and widows of ministers. Missions are sustained in Africa, Alaska, Asia, Australia, Labrador, Nicaragua, South America, West Indies, and Bohemia. A home for lepers is supported at Jerusalem. Among the educational institutions which are maintained by the Moravians are the Moravian College and Theological Seminary, the Moravian Parochial School for boys and girls, and the Moravian Seminary for girls, all at Bethlehem, Pa.; Linden Hall Seminary for Girls at Lititz; Nazareth Hall for Boys at Nazareth, Pa., and an academy for girls at Salem, N. C. The English official organ of the church is *The Moravian*, and the German official organ is *Der Brueder Botschafter*. The last provincial synod of the American Moravian Church, North, was held at Lititz, Pa., in 1908. The general synod of the church throughout the world was held at Herrnhut, Germany, in 1909. The next general synod will convene in 1914.

MORGAN, MICHAEL RYAN. An American soldier, died September 16, 1911. He was born in Nova Scotia in 1833, and received his early education in Paris. He entered the United States Military Academy, graduating in 1854. After service in the Third United States Artillery, he became captain in the Eleventh Infantry in 1861 and served throughout the war in the commissary department, rising to the rank of major. He was appointed lieutenant-colonel and assistant commissary-general in 1888, colonel in 1890, and brigadier-general in 1894. He was several times brevetted for distinguished and gallant services during the Civil War. He was a member of the Harper's Ferry Expedition to suppress John Brown's raid in 1855. He took part in the siege of Petersburg and the engagements in that section in 1864. He was commissary of subsistence in the United States army from 1894 to 1897. In the latter year he was retired by operation of law.

MORENO. See **BATTLESHIPS.**

MOROCCO. The largest of the Barbary states; a nominally independent Mohammedan empire on the northwestern coast of Africa; practically, though not, at the end of 1911, technically a French protectorate. Estimated area, 234,000 sq. miles; population, variously estimated at from 4,500,000 to 8,000,000—Berbers, Tuaregs, Bedouin and Mued Arabs, Jews, and negroes. Europeans in 1910, 19,243. The sultan and his subjects belong to the Malekite sect of the Sunnite Mohammedans. There are three capitals: Fez (120,000 inhabitants); Morocco, (50,000), the southern capital; and Mequinez (56,000). Tangier (35,000) is the residence of the foreign representatives, and a leading port.

Agriculture is undeveloped, and the abundant mineral resources are neglected. The manufactures are slippers and carpets. Total imports and exports in 1910, £4,190,987 and £2,272,246. Imports, 1909, £3,787,041 (1908, £3,050,814), of which £2,809,597 came through the ports, £380,480 through Melilla, and £596,964 across the Algerian frontier. The chief articles of import were: Cottons, £1,087,752; sugar, £856,272; tea, £235,559; machinery and hardware, £120,626; flour and semolina, £104,186; candles,

£102,689; tobacco, beverages, foodstuffs, etc. Exports, £2,127,555 (1908, £2,484,670); of which £1,807,549 through the ports, £294,960 through Melilla, £25,046 across the Algerian frontier. Chief exports: Barley, £490,203; hides and skins, £283,715; wool, £133,536; oxen, £127,883; eggs, £245,433; almonds, £136,359; beans, £85,438; wheat, £80,450; slippers, £34,869; olive oil, £16,079.

France contributed imports valued at £1,565,291, and received exports valued at £629,818; Great Britain (including Gibraltar and Malta), £1,404,741 and £800,030; Spain, £305,096 and £218,619; Germany, £224,719 and £339,428. Vessels entered 1909, exclusive of Melilla, 3175, of 2,426,921 tons; 1910, 3194, of 2,562,549. There are telegraphic submarine cables, four wireless stations, and a courier service; but no railways. The postal service is subject to control by the British, French, Spanish, and German governments.

The revenue from customs is estimated at £440,000. The debt amounts to £8,200,000, detailed as follows: French and German loans, £3,040,000; war expenditure and indemnities, £2,060,000 (Spain, £240,740); miscellaneous, £2,200,000. French loans amount to £2,480,000. A new loan (from the Moorish State Bank) of 101,124,000 francs was obtained in 1910.

The sultan is an absolute despot, spiritual as well as temporal. Six ministers counsel or serve him, as the occasion may demand. Mulai-Abd-el-Hafid, the reigning sovereign (1911), who dethroned his brother in 1908, was recognized by the powers January 5, 1909.

HISTORY.

THE FEZ EXPEDITION. Discontent with the sultan's government became manifest early in the year and in March hostile tribes to the southeast of Fez began to ravage the country. On March 26 the sultan's troops who had been sent to attack a rebel camp in the vicinity of Fez were repulsed and driven in a panic back into the city. By the end of March all the tribes from Taza, ninety miles east of Fez, to the Atlantic coast were reported to be in revolt, and the native sentiment was said to be generally in favor of the rebels. On April 2 the tribesmen attacked the southeastern walls of Fez, but were driven back by the artillery. The rebel movement gained ground, however, during April, and in the latter part of the month the situation was serious, Mequinez having fallen into the hands of the rebels and the sultan's brother having been proclaimed sultan. Alarm was felt for the safety of the European colonies. By April 20 it was reported that Fez was besieged on all sides. Meanwhile the French government had decided to send an expedition to the relief of Fez and for the restoration of order. The first French column reached Fez on April 26, and by the first of May additional reinforcements were ready to start from Casablanca. By May 11 a complete brigade was on its way to Fez from Casablanca. Meanwhile it was reported that the situation in the city was desperate and that the tribesmen had established a virtual blockade. The grievances of the tribesmen were outlined by one of their chiefs as follows: The sultan was blamed for doing nothing since his accession but extort money, pillage, rob, and kill, and as a result of his tyranny there was starvation and misery everywhere. The European nations had merely aided

him in his policy of extortion and oppression. The government had issued loans and the money for their redemption must be wrung from the tribesmen, and now to cap the climax a French army was coming against them. After the arrival of the second French body of troops the city was occupied and the safety of the foreigners assured. General Moinier, who commanded the expeditionary forces, after waiting a few days until his troops had rested, began operations for the restoration of order in the region about Fez. He left the capital on May 29 with three columns, and after overrunning the territory of some of the hostile tribes, occupied Mequinez, where the pretender, the sultan's brother, tendered his submission. The lines were kept open from Mequinez to Fez, the coast was rendered secure, and everything was done to enable the French to advance rapidly and insure the pacification of the region. The Moinier expedition was completely successful. It now remained only to give the sultan the means of governing, to organize his army under French instruction, to conclude the projected loans, and to carry out the proposed works of public improvement. These several objects had been set forth by the French foreign secretary as comprising the policy of the government in Morocco (see FRANCE, paragraphs on *History*).

Reprisals were desired by Mulai Hafid as soon as the tide turned with the arrival of the French troops, and he was reported to have sent out avenging expeditions of native troops under French officers. An unfortunate incident was reported to have occurred just before the siege was raised and while the first French column was in the city. Angered by rumors of cruelty on the part of tribesmen towards certain couriers, a part of the Fez garrison started out on May 21 to punish the offenders. In the Lemta district, where they alleged resistance on the part of the laborers, they began plundering and killing and soon dispersed the people and left the villages in ruins. It was said that about eighty women and children were afterwards sold as slaves in the markets of Fez. As the tribesmen had for some time past been assured of safety if they would peaceably return to submission, the effect of a policy of vengeance would be disastrous, and General Moinier promptly put a stop to reprisals.

THE SPANISH AT ALCAZAR. Early in June, despite the assurance of the premier, Canalejas, that the government would not embark on any foreign adventure, Spain sent a vessel to the port of Larache and a column was thence dispatched to Alcazar, which lies about twenty miles inland. It had been reported that mysterious horsemen had been seen on the walls of Alcazar on the night of June 7, and on June 8 the Spanish troops landed at the port and advanced toward Alcazar. The region was apparently calm, and the reasons which were given for the act appeared, in France at least, to be mere pretensions. It was said that the mysterious horsemen were merely men of a former pasha who had been a protégé of Spain and that among them were soldiers of the Spanish police. In France Spain's action was believed to proceed from a desire of showing her own power and bestirring herself in her own zone of influence as France had been doing at Fez. And it was pointed out that the Fez situation was altogether different, the French having gone there at the sultan's request and be-

cause his own sovereignty and even safety were threatened. Spain, on the other hand, had taken no account of his sovereignty, and her course was regarded by the sultan himself as an aggression. The French government asked Spain for an explanation, and the Spanish foreign office replied on June 10 that the act was in perfect conformity with the treaties and aimed simply at the defense of the city against the hostile pretender. It declared that the troops had landed only to help the Shereefian police and defend an exposed city in which Spanish families were in danger from the hostile tribesmen.

GERMAN INTERFERENCE. At the end of June Europe was greatly startled by the news that Germany, following the precedent of Spain in occupying Alcazar, had sent a warship to Agadir, a southern port of the Atlantic coast, ostensibly to protect the persons and property of German subjects. Agadir is situated about 500 miles south of the Straits of Gibraltar on an open roadstead and is not esteemed a port of any importance, its inhabitants numbering only about 500. The German press in announcing the government's decision on July 1, declared that German firms interested in the south of Morocco had sought protection in view of the dangers which threatened important German interests. This sudden stroke by Germany caused the greatest uneasiness in France. The Paris government was first apprised of this action on July 1, when the German ambassador, von Schoen, informed the French foreign minister, M. de Selves, that a gunboat had been sent to Agadir as a result of the repeated demands from German business houses on account of the disorders in that region. M. de Selves had at that time merely declared that such a decision without notice would seem strange to the French as inconsistent with the act of Algeciras and the Franco-German convention of 1909. The French press denied that there were any disorders in Agadir or that there were extensive German interests there. They regarded the action as the final seizure by Germany of a port that she had for some time past been coveting. It was remarked that when a few months before the commander of a French cruiser patrolling the coasts to prevent contraband had paid a simple visit of courtesy to the pasha, the German journals had protested that France had no right to send a vessel to Agadir, which was a closed port, and that such a course was in violation of the act of Algeciras. It was also remarked that when the French went to Fez the German papers had spoken of a compensation and had referred significantly to Agadir. It was argued that Germany had on two occasions, that is to say, in the act of Algeciras and in the 1909 convention, recognized that France had an especial interest in establishing order and peace in Morocco and had bound herself not to thwart it. The act of the German foreign minister, von Kiderlen-Waechter, was characterized as a blow of the fist on the table in the manner of Bismarck to demonstrate Germany's power.

Germany's course made a strong impression in England and early in July, Mr. Asquith, in reply to the question of the Opposition on the Moroccan policy, said that the government recognized that a new situation had arisen in which it was possible that British interests would be more seriously affected than hitherto,

but declared its belief that the problem could be solved by diplomacy.

THE MOROCCAN NEGOTIATIONS. A series of "conversations" between the German foreign office and the French ambassador now began and it was soon rumored in the press that Germany was insisting on excessive demands as a condition for the withdrawal of the *Panther* from Agadir. According to earlier reports Germany demanded the cession of the Gabun region of the French Congo, comprising the entire coast and extending as far as the Sanga River, along with the contingent reversion held by France over the Belgian Congo. The territory in question joined the German Kamerun, making its coast continuous nearly as far as the mouth of the Congo, and the total area was estimated at 200,000 square miles. This report caused great anxiety, not only in France but in England, where the cession was condemned as unwarrantable and as encroaching upon British interests. The Gabun territory was regarded as of great importance, and the cession of two ports, Libreville and Loango, was held to be a serious sacrifice on the part of France.

ENGLAND'S ATTITUDE. Mr. Lloyd-George made an important declaration in the course of a speech on July 21, at a banquet at the Mansion House. The speech was in general terms, but it was clearly understood as referring to the international situation. He said that he believed it essential to the highest interests of Great Britain that she should maintain her place and her prestige among the great world powers. He did not believe that anything would justify the disturbance of the international good will except matters of the gravest moment, but "if a situation were to be forced upon us in which peace could only be preserved by the surrender of the great and beneficent position Great Britain has won by centuries of heroism and achievement, by allowing Britain to be treated, where her interests were vitally affected, as if she were of no account in the cabinet of nations, then I say emphatically that peace at that price would be a humiliation intolerable for a great country like ours to endure." The speech was received with great satisfaction in France. It had been suspected there and elsewhere that the German movement had been timed in order to take advantage of English party dissensions and the declaration by Mr. Lloyd-George that "national honor is no party question" was very reassuring. Meanwhile the conversations were going on in Berlin between the French representative and the foreign office and many rumors were circulated concerning their substance, but no official reports were given out. Popular feeling in France was at high tension and in many quarters it was believed that war was unavoidable. Mr. Asquith made a statement in the House of Commons on July 27. He said that the situation had reached a serious point and that the question bristled with difficulties. While the British government claimed no predominant position in Morocco, it could not let the situation drift without an assertion of its interests and therefore it had thought it right to make it clear from the first that if France and Germany failed in a settlement, Great Britain must become an active party to the discussion. Mr. Balfour in reply said he had no criticism to offer, but declared that if there were any outside persons who believed that British absorption in home politics

and in party differences would admit of the adoption at that time of a policy which the country would not accept at any other time, they would find themselves mistaken. Mr. Asquith referred to the subject again a little later. He said conversations in which Great Britain took no part were going on between France and Germany. These might not affect the interests of Great Britain and he hoped they would not, but he must repeat what he had already said, namely, that failing a settlement honorable to both parties and not prejudicial to British interests, it would be the duty of the British government to take an active part in the discussions. Again the leader of the Opposition, Mr. Balfour, said that the government's policy would have the support of his party. It appeared that Germany's demands were at first excessive, but after August 1 became more moderate. There was a brief period in September when an *impasse* seemed probable. A fall of prices on the Bourse and a run on the municipal savings banks in Germany were thought to have disposed the government to a compromise.

GERMAN PUBLIC OPINION. Although the negotiations were officially kept secret it leaked out that France aimed at securing a free hand in Morocco and was willing in return to concede to Germany a considerable amount of territory in the French Congo. German public opinion was greatly stirred up by the declaration of Mr. Asquith, and especially by that of Mr. Lloyd-George, as to Great Britain's attitude and in a large part of the German press an effort was made to arouse German sentiment against England. It was pointed out that the hostile policy of England was constantly blocking the path of Germany. Her policy in this instance was declared to be a deliberate interference. Reports of an imaginary interview with a British diplomat, sharply criticising the German government, were widely circulated in the press. During the first weeks of September the feeling over the Moroccan crisis became very tense. It was believed that Germany, though willing to accept the offer of part of French Congo, was not willing to grant the free hand in Morocco which France demanded. The true nature of the replies to French proposals and the rejoinder of France were not known and there was much anxious speculation as to their terms. An interesting feature of the affair in Germany was the attitude of the Socialists who were in session in their congress at Jena. The extreme members of the party condemned the central committee for its acquiescence in the government's policy, but the great majority approved its defense by Herr Bebel and others, who held that where grave national interests are concerned, the Social Democratic party must have consideration for their own country. At the session of September 12 the congress adopted a resolution condemning the attempt of those who were trying to involve civilized nations like France, Germany, and England in war on account of Morocco, and urging the German working classes to use every means in their power to prevent war. In introducing the resolution, Herr Bebel made a speech saying that the Socialists were fully aware of the political realities. He said that the whole series of ideas and tendencies which had hitherto occupied the attention of the Socialists had been brushed aside and the main question before them was not that of disarmament,

but that of increased armaments both by sea and land. He declared that the country was moving toward a situation which could only end with a great catastrophe. In an address on September 14, Herr Bebel, while admitting that the colonization of Morocco would immensely promote German trade and bring her profit, said it was not worth the bones of a Prussian grenadier. The Socialists would make every effort to prevent an outbreak of war. If war should break out they would do what they could to remove the ruling class. A resolution protesting against any attempt to provoke a war and demanding an immediate summoning of the Reichstag was unanimously passed by the House on September 14.

On October 11 some of the essential features of the Moroccan agreement became known. These were the acquiescence of Germany in a French protectorate, with provisions for the administration of justice and concerning the status of the native protégés of the powers. Another feature was the provision for economic equality of Germany with France, and finally it was agreed that the Moroccan part of the agreement must be submitted to the treaty powers for their approval. Great dissatisfaction was expressed among all classes of society with the policy of the government. One Conservative journal summed up the matter as a "French Morocco, and the concession of a portion of the Kameruns in return for which we receive worthless Congo land," and declared that such an arrangement greatly damaged German prestige and estranged Germany from the Mohammedan world.

GERMANY AND ENGLAND. Although British and German public opinion was wrought to a high pitch in the summer time, especially after Mr. Lloyd-George's speech of July 21 which referred to the possibility of British intervention in the Moroccan negotiations, it was not realized how close the two countries were to war till speeches of the respective ministers in November reviewing the situation in the Reichstag and in Parliament brought the facts to light. In Germany, as the terms of the arrangement with France became known, there was a strong feeling in certain quarters that the government had not made a good bargain, and had let itself be influenced by the threat of British intervention, and there was a corresponding bitterness against England for meddling in a matter that concerned Germany and France alone. The Radicals and Socialists on the one hand attacked the government for having embarked on a dangerous adventure. The Conservatives, on the other hand, accused it of having allowed itself to be bullied by England into a settlement disadvantageous to Germany. On the publication of the treaties, Herr Lindequist, the colonial secretary, and Herr von Danckelmann, the permanent official in the colonial office, resigned, because they were not in accord with the terms of settlement. In the Reichstag resolutions were moved requiring the consent of that body to similar treaties in future. The German chancellor, von Bethmann-Hollweg, answered his critics in an address in the Reichstag on November 9. He said Germany had successfully carried out its programme of negotiating with France alone, and had not been diverted in her policy by the influence of a third power. The *Panther* had been sent to Agadir as a plain announcement of Germany's determination to

protect German subjects, and in no wise as a threat or provocation. The powers were informed of the dispatch of the ship just before her arrival at Agadir. The use made of Mr. Lloyd-George's speech by the government's accusers was, he said, unwarrantable. Certain journals chose to give it a chauvinist construction, but there was no evidence in it of anti-German feeling. As it had received this interpretation the German government had thought it necessary to bring it to the attention of the British foreign office, and to point out that Germany was negotiating with France in matters that did not primarily touch British interests, and that if Great Britain felt that her interests were affected, Germany expected her to discuss the matter through the usual diplomatic channels. The British government had not thereafter shown any desire to take part in the Franco-German conversations. He said the settlement in Morocco was an enormous gain and cleared the way to a better understanding in future with England as well as with France. The chancellor's speech was received with marked coldness in the Reichstag, and in the debate that followed the government was sharply criticised and feeling against England ran high. Herr von Heydebrand, the Conservative leader, declared that the new treaties gave France the complete mastery in Morocco while Germany's compensation was of doubtful value. He ridiculed the official account of Mr. Lloyd-George's speech, which he said was "a humiliating challenge of a kind that the German people would not put up with." He added that "the German people now know who it is that wants to hold universal sway when Germany desires to expand in the world." The chancellor in a short but vigorous reply declared that he had yielded nothing of the honor of the people, and that such passionate words had more to do with the coming elections than with Morocco or the Congo. He referred contemptuously to the class of patriots who find it necessary always to carry their swords in their mouths.

In the meantime there had been various reports as to what had actually occurred between the German and British governments during the Moroccan negotiations. There was a persistent belief in Germany on the one hand that the British government had sought to frustrate these negotiations, and in England that the German government had shown gross indifference to the desire of the British foreign office for information as to German plans in Morocco. Much resentment was caused in Germany by the report of an interview with the British ambassador in an Austrian newspaper, and by an alleged speech of a member of the cabinet, which were taken as signs that the British government was distinctly hostile to Germany, but it was officially announced later that no such interview or speech had been made by those officials. According to the British version the foreign office had had to wait fourteen days before the German government answered its inquiry as to Morocco, and in the interval between July 1 and July 24, the British government had been left completely in the dark as to Germany's intentions. Mr. Lloyd-George's speech which was made on the latter date, with the full approval of the government, was necessary on account of the great anxiety as to the effect on Great Britain of a failure of the Franco-German

negotiations. As the nature of Germany's demands during the earlier conversations became known in Great Britain, it was thought to be impossible for France to accept them, and it was feared in that case that Germany would exact large claims from Morocco by way of compensation and, specifically, would seize the port of Agadir and close the hinterland to foreigners. It was reported that at the time of Mr. Lloyd-George's speech the relations between the two countries were so strained that war seemed possible, and on two later occasions within the next two months the turn which the negotiations took led to similar alarms in Great Britain and were even said to have caused the government to begin military preparations. There had been much discussion and speculation as to the course of the affair when the German chancellor made the speech above outlined.

VERSION OF THE GERMAN FOREIGN SECRETARY. This speech was followed by a specific account of Germany's relations with Great Britain by the foreign secretary, Herr von Kiderlen-Waechter, on November 17. This presented the German point of view, which was in many respects contradictory to that which had gained currency in England. In the first place, he said that on June 30 the foreign office had sent word to all the powers signatory to the act of Algeciras, announcing the dispatch of the *Panther* and giving the reasons, and stating that the British government received a special communication from the German ambassador on July 1 saying that Germany had no intention of opposing the action of France in advancing to Fez, but had been compelled to undertake the protection of German subjects in southern Morocco until orderly conditions had been restored. It pointed out that the present situation rendered the provisions of the act of Algeciras illusory, and that Germany was ready, in common with France, to come to a final understanding on the Moroccan question. The foreign secretary declared that the British government made no inquiry in regard to the communication until July 21, when the foreign secretary, Sir Edward Grey, discussed the question unofficially with the German ambassador. On this occasion the former had said that since France could not accept the German demands, it was probable that the actual Moroccan question, in which British interests were concerned, would come to the front, and therefore the question of Germany's intention as to the closed port of Agadir and its hinterland had again become acute. The German ambassador said that he could not assume that Germany's demands were unacceptable to France and that the British government ought to wait until it was clear that British interests were affected. He declared that Germany had no intention of injuring British rights and interests. Germany was entitled to compensation if France were to set up a North African empire extending from the Tripolitan frontier to Senegambia with a predominant position in Morocco. England had been compensated in Egypt, but Germany had not been compensated at all. Sir Edward Grey replied that he did not wish to oppose in any way the extension of Germany's colonial possessions in Africa, but feared that English interests might be affected by the Moroccan question itself. It was only in the undesired event of the failure of France and Germany to reach an agreement in the negotiations that England

would have to insist on an explanation between Germany and herself. The German government returned an answer immediately expressing regret at England's apparent belief in intentions that Germany had never entertained. She had not thought of a naval port on the Moroccan coast, and had no designs upon Moroccan territory. Germany simply demanded that France should either adhere strictly to the Algeciras treaty or enter into explanations with the German government. ~~If the negotiations failed, Germany had no designs upon Moroccan territory, but must, in that case, demand the execution of the Algeciras act in letter and spirit.~~ Meanwhile, Mr. Lloyd-George had delivered a speech on July 21. This was the occasion for violent attacks upon Germany in both the French and British newspapers, and was generally construed as a warning to Germany. Accordingly, on July 24, the German ambassador in London was instructed to point out to the British government the dissatisfaction which such a speech must cause in Germany. Germany was now negotiating with France in a matter that concerned British interests neither directly nor indirectly. If Great Britain held a contrary opinion she should make it known through the ordinary diplomatic channel. There could be no better way of complicating and confusing the situation than by such a speech as that of Lloyd-George's. Sir Edward Grey in reply defended Mr. Lloyd-George's speech as moderate. He protested against the view that the British government wished to prevent a Franco-German agreement, but he repeated that if British rights were touched in the Moroccan question, the British government must defend them. Herr von Kiderlen-Waechter concluded with a historical review of the Moroccan question. The purport of this was that France had persisted in the violation of the act of Algeciras, France regarding herself as the mandatory of Europe for the restoration of order. On each occasion of such violation France had insisted that the measures were merely temporary and were in accord with the spirit of the act. In this position England generally agreed with France. It had been Germany's policy to come to terms with France in regard to these violations. She was willing to give to France a free hand politically, but must demand better guarantees for the maintenance of the principle of the open door and also a compensation as indemnity for the violation of the Algeciras act by France in establishing herself in Morocco. These views were communicated to the French government, but no additional proposals were forthcoming from France. Meanwhile, the French army having advanced to Fez and complaints having come from German subjects, especially in the Sus region, the German government had taken the step of sending a warship to Agadir.

This statement by the German foreign secretary occasioned much excitement and comment in the press in both countries.

SIR EDWARD GREY'S VERSION. The speech of the British foreign secretary, Sir Edward Grey, was awaited with intense interest as its tone was likely to affect seriously the relations between the two countries. It was delivered on Monday, November 27. Seldom in recent years has any public address been so widely quoted and commented upon. Its tone was measured,

candid, and altogether conciliatory. It began with a narrative of what had occurred between the British and German governments from the receipt by the former on July 1 of the announcement that Germany had sent the gunboat *Panther* to Agadir. This announcement, which declared that the action was taken to protect the lives and property of German subjects from the tribesmen, who were at that time in a state of ferment, was accompanied by an explanation which the foreign secretary regarded as more important. This explanation indicated that the German government intended to reopen the whole Moroccan question as it regarded a return to the *status quo* as doubtful, if not impossible, and contemplated a definite solution of the problem. If this end were attained it intimately concerned the British government, to whom it was most important that the nature of any solution of the Moroccan question should be known. Such a solution might, for example, be the partition of Morocco, in which case Great Britain was deeply concerned. Then followed the interview of July 4 between Sir Edward Grey and the German ambassador, in which the former declared that future developments might affect British interests and that therefore the British government could not recognize any new arrangement in which it did not take part. Thereupon followed an interval of silence and during this time information reached the British government that Germany might intend a partition of Morocco through negotiations to which it was not meant that Great Britain should be a party. On July 12, the British ambassador in Berlin brought to the German foreign secretary's attention the fact that mention had been made of negotiations between Germany, France, and Spain, implying that the British government would be excluded from it. To this the German foreign secretary replied that Germany had never had any such intention. From that time until July 24 the British government had received no further communication from the German government on the subject. During this interval it appeared that Germany had made demands of France in regard to the French Congo, "to which it was obvious to everybody who thought of it that neither the French government nor the French chamber could agree." That at once raised the question whether Germany, having failed to come to terms with France as to the French Congo, might not fall back on some other basis of settlement as, for example, the partition of Morocco. In view of this danger, therefore, Sir Edward Grey asked the German ambassador to meet him on July 21, and in the interview that followed informed him of his anxiety at the news as to the demands made on France—demands which it would be impossible for the French government to concede. He told him that the British government hoped that the negotiations would have a satisfactory result, but that it must be understood that if they were unsuccessful a very embarrassing situation would arise. The Germans were in the closed port of Agadir, and according to rumors were landing and negotiating with the natives, and it might be that they were obtaining concessions there or would hoist the German flag at the port. It was necessary to say this now because if it were not said the German government might feel resentment later on at having been led to suppose, from the silence of the British government on the subject,

that Great Britain had no concern in the matter. To this the ambassador replied that he was assured that his own government had no intention of acquiring monopolies or prejudicing British interests. On that same day, July 21, the chancellor of the exchequer, Mr. Lloyd-George, was to make a speech at the Mansion House. For a cabinet minister of first-rate importance to make a speech on an informal occasion without saying a word about foreign affairs after that interval would have been, in Sir Edward Grey's opinion, misleading to public opinion both in England and abroad. Mr. Lloyd George's speech was in the most general terms. It contained no threat to anyone and claimed no preëminence for Great Britain in international affairs; nor did it say that any single demand of Germany was inconsistent with British interests. Its whole point was that if British interests were affected, Great Britain must not be treated as if she were of no account. "If the time ever comes," said Sir Edward Grey, "when this cannot be said by a minister speaking in the position the chancellor of the exchequer was in, then we shall have ceased to exist as a great nation."

Three days later, on July 24, the German ambassador announced that Germany had not changed her intention in sending a ship to Agadir and had not landed a man there. He added that Germany regretted the credence given to insinuations that emanated from a source hostile to her. She had never thought of creating a naval port on the coast of Morocco and never would think of it. If German demands of France had been rather high the German government was ready to make concessions in Morocco as well as in colonial matters. To Sir Edward Grey's inquiry as to whether he might inform Parliament that not a man had been landed at Agadir, the ambassador replied that that information must, in view of the speech of the chancellor of the exchequer, be regarded as confidential. The ambassador then read a communication from his own government very stiff in tone criticising the speech of Mr. Lloyd-George. Sir Edward Grey defended the speech, saying that if it had created surprise in Germany that was in itself a justification of the speech, "for it could not have created surprise unless there had been some tendency to think that we might be disregarded." He added that the tone of the German government's communication made in inconsistent with British dignity to give explanations as to the speech of the chancellor of the exchequer. In conclusion, Sir Edward Grey said on this occasion that nothing had been said or would be said by the British foreign office to embroil the negotiations between Germany and France, but that on the contrary, the British government sincerely desired that the negotiations should succeed. This was followed on July 27 by a very friendly communication from the German government, which acknowledge with pleasure the statement that Great Britain desired an agreement between Germany and France. It pointed out that the territories that would be eventually exchanged were exclusively German and French and that special English interests would not be touched.

Having told what had passed between the two governments, Sir Edward Grey proceeded to comment on the general foreign policy of the country and on some of the criticisms that had been made in regard to it. In general, he

characterized the recent foreign policy as a continuance of Lord Lansdowne's, which had removed difficulties with France and resulted in an *entente*. The present government had gone forward in the same direction and promoted friendship with Russia. The policy of "splendid isolation," advocated by some, was impossible at the present time and even if it could be followed it would result in confronting the united hostility of the other powers. A further expansion of Great Britain in Africa was, in his opinion, undesirable, and Great Britain should not be regarded as an ambitious competing party to large territorial changes on that continent.

Sir Edward Grey's statement was received with marked approval both in England and France, and although there was some criticism upon it in Germany, the comment, on the whole, was moderate.

STATEMENT BY THE FRENCH FOREIGN SECRETARY. On December 14, the French foreign secretary, M. de Selves, contributed his share to the discussion of the Moroccan negotiations and the final agreement. After an attack by the members of the Right on the government's course in surrendering to a rival power part of a French colony which equaled in extent two-thirds of France and for resorting to secret methods in diplomacy, M. de Selves set forth the government's position. He traced the history of the negotiations and made some further revelations in regard to them. He said among other things that at the beginning of the crisis Germany had declared that she would not accept or abide by a new Algeiras conference to settle the Moroccan question. There was, M. de Selves admitted, a moment of tension between the two nations owing to the excessive demands of Germany, but after this the negotiations were conducted on a reasonable basis. He denied that Germany had shown any desire to provoke a conflict. He said, on the contrary, that her attitude had been conciliatory. He maintained that French interests had been guarded throughout and that the results proved that France had not been worsted. The main advantage, however, was that it took the Moroccan question out of foreign politics where it had long been a source of conflict. The specific motion brought in by the Right was that the ratification of the Franco-German accord in regard to Morocco should be postponed until after the negotiations that were then going on with Spain should be concluded. This motion was defeated by a majority of 448 to 98.

In general, French criticism of the Congo treaty took the following lines: It lost to France the region fought for and won by her colonial hero, De Brazza, it broke the connection between the two parts of the Congo remaining to France, and it brought in a competitor for the Belgian Congo succession.

THE GERMAN CHANCELLOR'S REPLY TO SIR EDWARD GREY. The final session of the German Reichstag was held on December 5. It carried by a large majority and with the full consent of the government, only a few Conservatives dissenting, the resolution declaring that henceforth imperial legislation would be necessary for any further acquisitions or cessations of colonial territory. The chancellor, Herr von Bethmann-Hollweg, made a speech concerning the course of the government during the recent negotiations and took up several points in the recent statement of Sir Edward Grey.

He referred to the fact that the latter had been fully informed as to the nature of the negotiations through his own admission, since France during the whole course was engaged in intimate exchange of opinions with England and asked England's advice in regard to any question that affected her interests. It was therefore hard to see how England could regard her interests as menaced. It was singular that the latter power regarded with anxiety the sending of the *Panther* to Agadir, but appeared to feel no sort of alarm at the procedure of Spain or at the advance of the French to Fez. As to the period of silence to which Sir Edward Grey referred, the silence had been on both sides. Any question could readily have been answered by Germany if the British government had asked it. Looking back over the whole Moroccan trouble the chancellor declared that Germany rather than England seemed in danger of being swept out of the way. England and France had disposed of Morocco in 1904 without regard to German interests and it was necessary for their protection that Germany should go to Agadir as she had gone to Algeiras. The chancellor, however, concluded in a very conciliatory vein, acknowledging the evident desire of the British government for peace and saying that Germany also desired peace and friendship with England. Other nations, however, said he, must reckon with the progressive development of Germany as shown during the last forty years. On the whole, considering that the elections were approaching and that it was necessary for the government to defer to the national sentiment, the speech was considered very moderate in tone.

During the Moroccan negotiations and while the treaties were under discussion there were persistent rumors of secret intrigues on the part of private persons to bring about an international adjustment in their own interests. The Socialists alleged secret understandings between French and German financiers and accused the government of letting itself be made the catspaw of capitalists. In certain quarters the Moroccan question and its settlement were declared to have been the affair of financiers actuated by motives of private gain. Toward the close of the year these rumors of a great public scandal in connection with the affair increased and became more definite.

THE FRANCO-GERMAN TREATIES. The text of the treaties between France and Germany with respect to Morocco was published on November 4. The first concerned Morocco alone, the second, or colonial treaty, dealt with the territorial compensations. The treaty dealing with Morocco was in the form of a supplement to the Franco-German agreement of February, 1909. Germany, for her part, declared that she had no interests in Morocco other than economic, that she would not interfere with the action of France in carrying out necessary reforms in military, financial, or administrative matters and would, in fact, approve the establishment of a French protectorate in Morocco. France, on her side, guaranteed freedom and equality of treatment to foreign trade and commerce, and that mining concessions should be bestowed without discrimination against any nation. The new railways, especially that from Tangier to Fez, were to be managed by the Moroccan government under the guidance of France and with proper precautions against

favoritism in the treatment of contractors. Before regular courts were established a provisional system of arbitration under French control was to be provided for the settlement of civil disputes. Other features were Germany's agreement to suppress ultimately the consular jurisdictions, the guarantee of fishing rights on the coast, the recommendation of the opening of closed ports, and finally the requirement that the treaty should be signed by the powers signatory to the act of Algeciras, and that Germany would support France in requesting their adherence.

The colonial treaty arranged for concessions of territory to the French Congo and the German Kamerun. The territories ceded by France to Germany comprised a region in Equatorial Africa of about 230,000 sq. kilometers, with a population estimated at from 600,000 to 1,000,000. The ceded territory included a strip running east and west from the coast and eastern border of Spanish Guinea to the River Sanga, and a large strip running north and south from the so-called "duck's bill" to Bonga on the Congo River. In return France received from Germany the portion of the "duck's bill" that lies north of Kamerun, with an area of about 14,000 square kilometers. It was agreed that the delimitation of the new frontier should be made by a mixed commission six months after the ratification of the treaty. The boundary should follow as nearly as possible the natural frontiers. France had a right to build a railway across German territory to connect Gabun and the Middle Congo and also the Middle Congo and the Ubangi. She also retained certain privileges concerning the establishment of posts, the transit of merchandise, etc., in the ceded territory. The telegraph line along the Ubangi remained French. It was provided that there should be no obstacle to the passage of French or German troops with their arms and ammunition either along the rivers or by land. Finally it was agreed that in accordance with the spirit of the act of Berlin of 1885, any future changes that might be made affecting the status of the Congo Basin should become the subject of exchange of views between the signatories to the act of Berlin.

Both powers agreed to submit to arbitration at The Hague all disputes or differences arising out of the treaty; and France agreed to permit the association of French and German interests in business enterprises for which they had secured contracts.

After the conclusion of the treaties with Germany it remained for France to come to an agreement with Spain. The German government in an explanatory letter accompanying the treaty agreed not to interfere in the French negotiations with Spain concerning Morocco.

THE SECRET ARTICLES OF THE ANGO-FRENCH AGREEMENT. At the end of November, 1911, the British government published the text of the Declaration of 1904 between Great Britain and France as to Egypt and Morocco, together with the secret articles which had been signed at that time. It will be remembered that the main point of the treaty of 1904 between France and England was that France should have a free hand in Morocco and England a free hand in Egypt. There had been much talk in regard to the secret articles that formed a part of that treaty and in view of the present situation the government at last made them public. They

were not, however, of any great importance. They provided that in case of possible political developments in Africa certain points agreed upon in the published declaration should be maintained. Article 1 declares that if either government should find itself obliged to change its policy in respect to Egypt or Morocco it pledges itself to maintain the agreement stated in Article 4 of the declaration, that there should be no inequality in the treatment of each other's traders, that the authority of the State should be maintained in all concessions for roads, railways, etc., and that both should also abide by the article of the declaration that guaranteed the free passage of the Suez Canal and the article that prohibited the fortifying of any part of the Moroccan coast between Melilla and Sebu except the places on the Mediterranean which the Spaniards held in 1904. Article 2 of the secret agreement declared that Great Britain had no present intention to make changes in the system of the capitulations or in the judicial administration of Egypt, and that if she introduced reforms in Egypt as to the legislative system she would not refuse to entertain suggestions from France as to similar reforms in Morocco. Article 3 declared that whenever the sultan's authority ceased in the region about Melilla, Ceuta, and other *présides* it should come within the sphere of influence of Spain, but the latter power could not alienate any part of the territories under her authority or in her sphere of influence and would be obliged to give formal assent to the articles of the declaration in regard to free passage of the Suez Canal, equality of treatment of the French and English traders, etc. Article 4 provided that if Spain when invited to consent to these provisions declined the arrangement, the agreement between France and Great Britain was none the less applicable. Article 5 declared that if the consent of the other powers to the decree mentioned in Article I of the declaration were not obtained, the French government would not oppose the repayment at par of the guaranteed, privileged, and unified debts after July 15, 1910.

SPAIN AND MOROCCO. On January 7 King Alfonso, with the prime minister, Señor Canalejas, and the minister of war, General Aznar, paid a visit to Melilla, where he received an enthusiastic popular welcome, and appeared at a review of the Moors. Spain's course in sending troops to Alcazar in June has been discussed in a preceding paragraph. (See also *SPAIN*, paragraph on *History*.) An incident that tended for the moment to increase the indignation of the French occurred on July 15, when Spanish soldiers seized a French consular agent and brought him before the officer of the guard, who released him, but without apology for the indignities he had suffered. But on the demand of the French government, Spain promptly rendered an explanation expressing regret for the occurrence, and offering a formal apology to the consular agent. In the autumn trouble broke out afresh among the Riff tribesmen. Early in October the Spanish troops at Melilla proceeded against the Riffs. An engagement took place on the 7th, resulting in a loss to the Spaniards of 50 killed and 212 wounded. It was estimated that the tribesmen in the field numbered over 10,000. The government was blamed for the unsuccessful action of October 7. Upon the demand for reinforcements in the Riff country from the general com-

manding in Melilla, the government sent a number of troops, and as the demands continued the minister of war paid a visit to the region himself. This visit caused jealousy and it was said that the minister of war had assumed command of the army, and they held him responsible for the unsuccessful action of October 7. The Riffs showed increasing violence in attacking the Spaniards, and severe fighting was reported in the closing days of December, although peace had been announced a short time before. The government decided to send further reinforcements of 8000 men. For the first time since the beginning of hostilities in 1909 the Moors were said to be deliberately taking the offensive.

The secret treaty of 1905 with Spain, published in a French newspaper on November 8, defined the respective spheres of influence of the two powers. Spain engaged not to take any action in her zone except in accord with France, but it was stipulated that "In the event that the Moroccan state, and the Shereefian government could not subsist by reason of the weakness of that government . . . and the maintenance of the *status quo* should be impossible, Spain should have a free hand in her sphere." On the basis of the former provision France criticized Spain's occupation of Alcazar. On the basis of the latter, Spain defended it.

MORTGAGE LOANS. See INSURANCE.

MORTIMER, JAMES. An American public official and playwright, died February 23, 1911. He was born in 1832, and was educated in the United States Naval Academy. He served as a midshipman at the time of the war with Mexico in 1847. At the conclusion of the war he left the navy and began work as a journalist in Philadelphia. In 1850 he started the *Frankford Journal*. Shortly after, however, he was appointed an attaché of the United States legation in Paris. He remained in the diplomatic service for some years, being stationed for a considerable time in St. Petersburg as secretary to the United States minister. Returning to Paris he gave up diplomacy and acted as Paris correspondent for a number of American newspapers and contributed articles on American subjects to many Paris daily papers. The emperor Napoleon III. happened to read some articles by Mortimer, in which his own schemes were very sympathetically treated, and he sent for the writer and expressed his gratitude. From this time until his death the relations between Mortimer and the emperor were very friendly. He acted as messenger between the emperor and the empress Eugénie. Before the war of 1870 the emperor provided Mortimer with the funds to establish the London *Figaro*, which first appeared in May, 1870, and was owned and edited by him for thirteen years. During this time he devoted a great deal of his attention to writing plays and between thirty and forty plays written by him were produced in London, the first being a comedy entitled *Joy is Dangerous*, which was played in the early seventies. The best known of his dramatic works was the comedy *Gloriana*, which was first produced in 1891 and was revived under the name *The Artful Valet*. In the adaptation by Mr. Mortimer of *La Dame aux Camélias*, entitled *Heartsease*, Mme. Modjeska made her first appearance in London in 1880. The last play of his acted in London was entitled *My Bache-*

lor Past. Mr. Mortimer was well known as a chess player.

MORTON, PAUL. An American public official and life insurance president, died January 19, 1911. He was born in Detroit, Mich., in 1857, the son of J. Sterling Morton, who was secretary of the interior under President Cleveland. His only formal education was in the public schools and that ended when he was fifteen years of age, when he went to work as a clerk in a railroad freight office. After several promotions he became in 1890 general freight agent of the Chicago, Burlington & Quincy Railroad. Two years later he became vice-president of the Colorado Fuel & Iron Company. In 1896 he was chosen vice-president of the Atchison, Topeka & Santa Fé Railroad, with special charge of the traffic. During this period he became the friend of Theodore Roosevelt, who was at that time president of the National Civil Service Commission. The friendship thus formed was increased after Mr. Roosevelt was elected Vice-President. He made frequent trips to the Southwest and was usually entertained by Mr. Morton. When Mr. Roosevelt became President he offered Mr. Morton appointment to the first cabinet office that became vacant. This proved to be the portfolio of Secretary of Commerce and Labor. Mr. Morton declined this, but in a short time accepted the invitation to enter the cabinet as secretary of the navy. His term began July 4, 1904, and ended exactly a year later. During this period, although he had had no previous experience in naval matters, he showed a ready grasp of the problems of the department, and his application of the energetic methods of a railroad man in the work of construction and improvement of the naval equipment resulted in greater expedition in the building and equipment of ships than had ever been witnessed before. As a member of the cabinet Secretary Morton closely cooperated with President Roosevelt in plans for the development of the interior portions of the country. He was an enthusiastic advocate of the development of water-power and plans for irrigation. He was a trusted adviser of the President on railway matters and through this became involved in charges that he had allowed rebates while he was vice-president of the Atchison Railroad. The charges were investigated at great length, but in the end the President declared himself convinced that Mr. Morton was in no way responsible for any infraction of the law. The Interstate Commerce Commission also held that he was free from blame. Mr. Morton's great executive ability led to many offers of lucrative business positions, and at the conclusion of the life insurance investigation of 1906 he was chosen president of the Equitable Life Assurance Society. From that time until his death he was almost entirely identified with his work in this office. At the time of his election the company was threatened with serious loss of business both abroad and at home. By his energetic and intelligent administration he succeeded in rehabilitating the company and restoring it to its former prosperity. He was director in several financial institutions and was vice-president of the Panama-American Railroad.

MOSELEY, EDWARD AUGUSTUS. An American economist and authority on railways, died April 18, 1911. He was born at Newburyport, Mass., in 1846. When sixteen years of age he

shipped on a vessel in the East Indian trade and made many voyages. Returning to Newburyport he studied law and was admitted to the bar of the Supreme Court of the United States. He served for some time in the legislature and held several public offices. In 1887 he was appointed secretary of the Interstate Commerce Commission. He helped organize the commission under the law of 1887 and also acted as disbursing officer. At the time of the American occupation of Cuba Mr. Moseley, at the request of the governor-general, was sent there to assist in drafting a railroad law to fix a classification of freight, to formulate rules of practice, and to fix railroad rates. He was appointed by President Roosevelt assistant recorder of the anthracite coal strike commission. He was known as a leading authority on questions relating to the safety of railroad employees and patrons. He received the thanks of the Commonwealth of Massachusetts for disinterested services in the cause of humanity. He was a member of several learned and patriotic societies. He was the author of *Arbitration as Applied to Railways and Their Employees; Safety Appliances on Railroads; One Hundred Years of Interstate Commerce; John Boyle O'Reilly, the Man; Railway Accidents in the United States*, and numerous articles on safety appliances on railroads.

MOSQUITOES. See INSECTS AND THE PROPAGATION OF DISEASE.

MOTOR BOATING. See YACHTING.

MOTOR FIRE APPARATUS. See FIRE PROTECTION.

MOTORS. See AERONAUTICS.

MOTORS, SINGLE PHASE. See DYNAMO-ELECTRIC MACHINERY.

MOTORS, INDUCTION. See ELECTRIC PROPULSION OF SHIPS.

MOTOR TRUCKS, MILITARY. See MILITARY PROGRESS.

MOTTL, FELIX. A German musician and musical conductor, died July 2, 1911. He was born in Vienna in 1856. As a boy he sang in a church choir in that city, where his fine soprano voice created a sensation. He studied in the conservatory under Hellmesmerger, from whom he learned conducting. He studied under Brückner for theory and Dessau for composition. He also studied pianoforte at the conservatory. He graduated with high honors and was called to conduct the Wagnerian Verein, as well as some performances at the short-lived Vienna Opéra Comique. In 1880 he was called to the Grand Ducal Opera House at Carlsruhe, and thirteen years later was made general musical director of the Grand Duchy of Baden. His talent as a musician and conductor soon brought the small opera house in Carlsruhe to a foremost place in the musical activities of Germany, and artists of the first rank were glad to have an opportunity of appearing there. In 1886 Mottl went to Bayreuth, where he conducted *Tannhäuser*. He was afterwards there for nearly every succeeding festival and was a noted champion of Wagner's music. He received calls from Berlin and Munich, but he preferred to remain at Carlsruhe. He conducted Wagnerian concerts at Paris, and also a performance of Berlioz's opera, *Les Troyens*, in that city. In 1893 he produced his one-act opera, *Prince and Singer*, at Carlsruhe, and it was cordially received. He had previously produced *Agnes Bernauer* at Weimar

in 1880, and *Elenstein*, a pastoral play, at Carlsruhe in 1881. Mr. Mottl was engaged by Heinrich Conried as general musical conductor of the Metropolitan Opera House for five years. He remained, however, but one year, declaring himself so dissatisfied with the conditions that he encountered in New York that he was glad to depart. His efforts to establish classical Sunday night concerts at the Metropolitan Opera House were too great an innovation to meet with success. He demonstrated his remarkable versatility while in New York and made an excellent impression as a conductor. On his return to Germany he went to Munich, where he was in charge of the Prince Regent and of the Residenz theaters; he also conducted the annual Wagner and Mozart performances held in that city.

MT. ETNA. See VOLCANOES.

MT. WILSON SOLAR OBSERVATORY. See ASTRONOMY.

MOZAMBIQUE. See PORTUGUESE EAST AFRICA.

MUDD, SYDNEY EMANUEL. An American public official, former congressman from Maryland, died October 21, 1911. He was born in Charles City, Md., in 1858 and graduated from St. John's College in 1878. He studied law and was admitted to the bar in 1880, practicing at La Plata, Md. In 1879, 1881, and 1896 he was a member of the Maryland House of Delegates. In the latter year he was speaker. He served in the Fifty-first Congress from 1889 to 1891, and in the Fifty-fifth to Sixty-first congresses, 1897 to 1911. It was largely through his efforts that the United States government expended \$10,000,000 on the United States Naval Academy at Annapolis.

MULAI HAFID. See MOROCCO, *History*.

MULTIPLEX TELEGRAPHY. See TELEGRAPHY.

MUNICH ART EXHIBITION. See ART.

MUNICIPAL ACCOUNTING. See MUNICIPAL GOVERNMENT.

MUNICIPAL GOVERNMENT. The centre of the stage of municipal government for a number of years past has been occupied by charter and allied municipal reforms. These reforms have included a variety of measures designed to secure more thoroughly representative government, greater accountability to voters and taxpayers, and greater efficiency in all branches of municipal endeavor. Accordingly, much has been attempted in the way of primary and election reforms, the short ballot, election at large instead of by wards, the recall of public officials by popular vote, direct popular legislation through the initiative, popular veto power through the referendum, clear-cut responsibility of city officials by making each official definitely responsible for some branch of administration, and last but not least, full and prompt publicity through carefully framed annual budgets, and through frequent, prompt, and full balance sheets and financial and physical operating reports. All these and other reforms are being effected almost daily, some in one city, some in another, and many all in one. The most sweeping and comprehensive reforms have been wrought in the many cities and towns which have adopted the commission plan of city government during the past four or five years; for the commission plan generally brings with it, as charter provisions, if not always in practice, all

the reforms indicated instead of waiting for their adoption piecemeal.

Besides reforms in charters and the machinery of government generally there have been, of course, many recent and notable changes in the character of the personnel of city government. Steady progress is also being made in the physical development of cities and towns, including the broad field of city planning and such departmental activities as street cleaning and maintenance, sewerage and sewage disposal, garbage and refuse disposal, sanitary and economic supervision of milk and other food supplies, fire and police protection, and parks and playgrounds. These topics are dwelt upon at length elsewhere under their respective headings.

NATIONAL MUNICIPAL LEAGUE SURVEY. Before taking up in more detail some specific features of municipal government, a brief further survey of the whole field, but confined more particularly to 1911, may be made. This cannot be done more effectively than by drawing upon the annual survey submitted to the National Municipal League, at Richmond, Va., in November, 1911, by Mr. Clinton Rogers Woodruff, secretary of the league (published at length in the *National Municipal Review* for January, 1912—the new quarterly established by the league). For the seventeen years of the life of the league, Mr. Woodruff said, the most important changes in municipal government had been an expansion of functions and a simplification of machinery. At present the most notable tendency in American municipal life is that toward hopefulness. More specific mention of tendencies included: The growing movement for municipal home rule; the scrutiny of franchise grants for public service corporations; the recent creation of local commissions to regulate such corporations in 14 cities, and the increase of State commissions of like character from only two (Massachusetts and New York) five years ago to 27 in 1911; the extension of the civil service or the merit system, including the provision of better means for selecting and retaining in office experts, as well as clerks and other departmental subordinates. The latter, like the increase in bureaus of municipal research, is a part of the strong present movement for increased municipal efficiency already noted. "Some of these bureaus," Mr. Woodruff states, "have the tendency to overstress accounting, as a means of reorganizing municipal administration." The election of many Socialists to municipal office in November, 1911, was also noted. Incomplete returns, Mr. Woodruff stated, indicated the election of full Socialist tickets in Schenectady, N. Y., Barberton, Cuyahoga Falls, Lima, Lorain, Mansfield, Saint Mary's, and Salem, O.; Dearborn, Ind. (except clerk); Eureka, Manti, and Murray, Utah; while at Crookston, Minn., the Socialists elected a mayor and one alderman, at Rockaway, N. J., a mayor, besides various officers in municipalities in Connecticut, Pennsylvania, Kentucky, Michigan and other States. Some hundreds of Socialists, it is believed, were holding office already, before the elections of 1911. Perhaps quite as notable as the fact just stated is a list of the cities where women hold municipal office—in nearly twenty States, extending from Massachusetts, New York, and New Jersey, to Oregon, Washington, and California, and from Louisiana and Kentucky to Michigan and Wisconsin, and including such

positions as mayor, city clerk, treasurer, auditor, health officer, city bacteriologist, school superintendent, member of school board, and patrolman.

MUNICIPAL ACCOUNTING. One by one American cities are substituting for mere cash-book entries well-devised systems of accounting designed to show their actual financial status. Reforms to this end are largely due to the initiative of the National Municipal League, which has been followed up by the work of the federal Census Bureau and of State boards in Massachusetts, New York, Ohio, Indiana, and Iowa, all of which are engaged in the collection and publication of uniform financial statistics. The Ohio board has the power of audit of municipal accounts, as well as that of compelling the adoption of a system of uniform accounts throughout the State. Recent Massachusetts legislation authorizes the State Bureau of Statistics to aid cities in installing accounting systems, on request from the cities. The Metz Fund for Promoting Efficient Municipal Accounting and Reporting has been provided by Ex-Controller Metz, New York City, to serve as a school and publicity bureau to the end indicated by the title.

COMMISSION PLAN. During 1911 nearly a hundred cities and towns voted to adopt the commission plan, or nearly as many as had previously voted for it since the plan came into use at Galveston, Tex., in 1901. Exact numbers of commission cities are not easily determined, owing to the rapid progress of the movement, and to the absence of a uniform standard by which to determine whether a new charter is or is not of the commission type. There is a general agreement that the essentials of the commission plan include a small council, elected at large instead of by wards, in which single body is vested all the legislative and executive power of the city, with each commission at the head of a great department or group of departments of the city government, but subordinate to the council as a whole. Non-partisan primaries and elections are the rule, the better to ensure representative government, as free as possible from boss or partisan control. Still further devices to ensure popular control and to serve as a check on the actions of a small body of men, exercising all municipal functions, are the initiative, the referendum, and the recall, as also various publicity measures. Obviously, any one or more of these features may exist independently of commission government. The prime essential is the small all-inclusive council, which has been named a commission, although it is elected, while commissions, as previously understood, have generally been appointive officers, accountable to some higher official or officials, rather than directly accountable to the people. Aside from the all-inclusive commission, which embraces the mayor, shorn of all or practically all powers not shared equally with other members of the council, all the other features of the commission plan are, as it were, accessories to this as the main fact, or checks upon possible evils which might arise from so great a concentration of power. It should be understood that the members of the commission or council are the only elective city officers, unless it be the members of the board of education and possibly the city treasurer or the auditor. But the mere restriction of the elective officials to a few men (or the short ballot) does not

constitute commission government, unless all executive and legislative powers are lodged in one self-contained body, responsible only to the electorate. Thus, a small council possessed only of legislative powers of appointment and all other executive control, would be the very antithesis of the commission plan; in fact, it would be an extreme type of that separation of legislative and executive functions recommended in the municipal programme of the National Municipal League before the beginning of the commission plan movement.

With the exception of those States in which cities have been granted the right to form their own charters, commission government is possible only under a specific charter to that effect, or under a general State law applying to certain or all classes of cities. As a rule, cities vote in either case on the adoption of the commission charter or general statute. The accompanying table presents the best available list of cities and towns which had adopted the commission plan so far as reported up to the second week in January, 1912. The list (see left hand column) is a combination of records kept by the Short Ballot Organization, of New York City, and the National Municipal League, of Philadelphia, checked and supplemented by a list, not so recent within a few months, given in Bradford's book (B) on the commission plan (mentioned further on). A summary by States and groups of States is given just below. Of the 48 States, the commission plan appears to have been adopted in 34, but in only one place in nine of these States. Texas leads with 29 cities, and Kansas and Illinois follow with 26 and 19, respectively.

Me. 1	Ala. 8	Mo. 0
N. H. 0	Miss. 4	Ark. 0
Vt. 0	La. 1	Tex. 29
Mass. 6	Tenn. 5	Okla. 17
R. I. 0	Ky. 2	Col. 3
Conn. 0	S. W. 20	N. M. 1
N. E. 7	Ohio 0	S. W. 50
N. Y. 0	Ind. 0	Wash. 8
N. J. 7	Mich. 8	Ore. 1
Pa. 0	Ill. 19	Calif. 12
Del. 0	Wis. 3	Ariz. 0
Md. 1	N. C. 29	Nev. 0
Mid. 8	Ia. 7	Utah 5
Va. 0	Min. 3	Ida. 2
W. Va. 3	Kan. 26	Pac. and
N. C. 3	Neb. 2	Ry. Mt. 28
S. C. 1	S. Dak. 3	Total 206
Ga. 2	N. Dak. 11	
Fla. 2	Wyo. 1	
S'n 11	Mont. 1	
	N. W. 54	

By groups, the totals increase progressively from 7 for New England to 54 for the South-western States, then fall sharply to 28 for the Pacific and Rocky Mountain States, as compared with 29 for the North Central States. By years of adoption, as nearly as can be determined, the showing is:

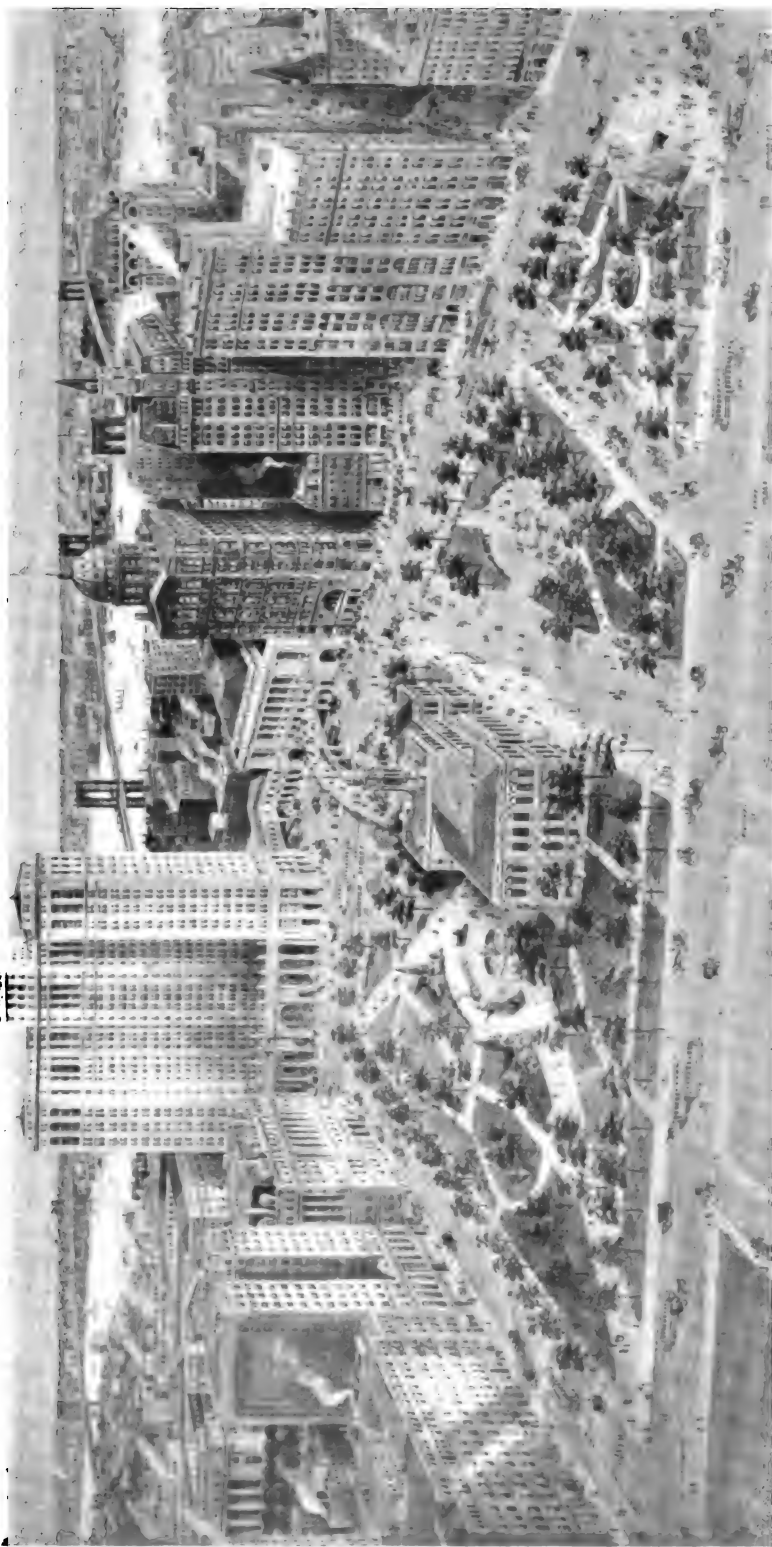
Years	Years	
1901 1	1909 29	
1905 1	1910 58	
1907 9	1911 95	
1908 29	Not given 7	
Total	206	

In size, the commission cities and towns range from Margate City, N. J. (129), to Oakland, Cal. (150,174 inhabitants). Six cities of more than 100,000 population have adopted the commission plan: Lowell, Mass., Birmingham, Ala., Memphis, Tenn., Omaha, Neb., Spokane, Wash., and Oakland, Cal. Of the 60 or more cities which had rejected the plan to the close of 1911 the largest was Jersey City, with a population of 267,779 in 1900. A much larger city (Buffalo, 423,715 population) has cast a decided "public opinion" vote in favor of a commission plan charter, but was unable to secure the necessary legislation in either 1910 or 1911.

From a considerable number of summaries given by Bradford, it appears that quite generally the mayor is elected to fill a specified commissionership, while the other commissioners are more commonly assigned to their departments by a majority vote or all the commissioners or councilmen, after election. The number of commissioners appears to be only three for most of the small places and generally five for the larger ones. About half the cities listed by Bradford elect all the commissioners at one time. The disadvantage due to possible change in personnel is partly offset by the relatively long term of office, which generally averages over three years. In only a small proportion of the places are the commissioners required to give all their time to their official duties. The salaries paid commissioners show a wide range. Alabama stands highest with \$7000 per year to the mayor and other commissioners in cities of 100,000 and over, which includes only Birmingham. The initiative and referendum are generally authorized, but are sometimes limited in scope. The recall is quite commonly a feature, but has seldom been used as yet. Non-partisan primaries and elections are generally in force. The civil service, strangely enough, is often limited, both quantitatively and qualitatively.

Judged by its popularity where tried and its rapid spread the commission plan is highly successful, but it is still in its early stages of trial in most of the cities that have adopted it. Moreover, even if scientific, financial, and physical records are being kept in a few of the commission cities since the plan was adopted, that was certainly not the case before, so that exact comparisons are impossible and judgment must be based chiefly on impressions and opinions. These, so far as reported, are almost always highly favorable, but it should be remembered that the comparisons are generally drawn between an old, discredited, and discarded type of government at its worst and a novel type which, if not at its best, still has all the advantages of the "new broom." What is needed for judgment is accurate figures for comparing results under the two types of government at either their worst or their best—unless it can be proved that one is inherently bad and the other inherently good.

OTHER CHARTER TYPES. Boston appears to have made favorable progress under the new charter, which provides for a small council (9) with full legislative powers and a mayor with large executive powers, including those of appointment of nearly all administrative offices. The vote in November, 1911, to determine whether Mayor Fitzgerald should stand for reelection or complete the last half of his four-



THE PROPOSED IMPROVEMENT OF CITY HALL PARK, AND THE ESTABLISHMENT OF A MUNICIPAL CENTER, NEW YORK
SHOWING THE APPROACH TO THE BROOKLYN BRIDGE, THE REMOVAL OF THE COUNTY COURT HOUSE AND POST OFFICE AND OTHER IMPROVEMENTS

year term (a modified form of recall), resulted in his favor. At St. Louis, Mo., a charter framed with great care, under the State home-rule law, was defeated in 1911. It provided for a small city council, an independent mayor, referendum on franchise grants to utility companies, and the recall.

The year passed without the enactment of a new charter for New York City. This was a distinct gain in view of the fact that the wholesome movement for genuine charter reform along carefully wrought and honest lines, which was begun several years ago, gradually degenerated into a struggle between political parties and finally, in 1911, resulted in a boldly partisan attempt to force a charter upon New York City which few seemed to want except party bosses and their followers at Albany, and the consequences of which scarcely anyone could understand.

EFFICIENCY BUREAUS. The New York and other private bureaus of municipal research carried on their work of investigation and publicity during the year with gratifying results. A new bureau at Walla Walla, Wash., was reported. The temporary work of the (official) Chicago Commission on City Expenditures is being continued by the (private) Chicago Bureau of Public Efficiency, under the auspices of the City Club of Chicago. The (official) Milwaukee Bureau of Economy and Efficiency has published and projected a valuable series of reports on various municipal and social conditions in Milwaukee. The bureau has the co-operation of the University of Wisconsin, the State Tax Commission, and has the assistance of numerous engineering and other technical experts, both in a general advisory capacity and for such work as tests of the efficiency of the city refuse incinerating plant.

TAXATION REFORM has come in for a share of attention, but is largely a State rather than a municipal function. The national conferences on taxation, begun in 1907, have been continued, as have been the activities of the National Tax Association. The movement for the separate taxation of land and improvements is making progress. A constitutional amendment, permitting full local option in taxation methods, has been defeated recently in Oregon, but county local option has been secured. In Canada, Vancouver and Edmonton, B. C., are reported as having discontinued taxation on improvements.

CITY PLANNING. Many notable papers and discussions were presented at the third City Planning Conference held in Philadelphia in 1911. Several speakers from Great Britain participated. Seattle, St. Louis, and other cities have had city planning commissions at work and various studies have been made by, or for, private organizations.

Limitations on the height of buildings, a subject closely allied to city planning, were given in the annual report of the City Planning Commission of Hartford, Conn., for 1910-11. Of 30 large cities listed, 19 had set no limits on building heights, while 11 had more or less rigid regulations.

Public comfort stations, according to the report just cited, had been established by Atlantic City, N. J., Baltimore, Md., Boston, Mass., Cincinnati, O., Denver, Col., Detroit, Mich., Lawrence, Mass., New York, N. Y., Washington, D. C., and Worcester, Mass.

A Berlin metropolitan district was created by the Prussian government, to take effect April 1, 1912. Besides Berlin and Charlottenburg, six other communities will be included. The district will be governed jointly by an assembly of 100 members, elected for seven years by the local councils and by a council of 17 members, elected by the assembly, subject to approval by the king. The district authorities will have broad town-planning powers, including the layout of streets, parks, and playgrounds, and the establishing of railways. Its control over the street and city plan will be subject to the approval of the Prussian minister of public works. See article by J. Stübgen, *Zentralblatt der Bauverwaltung*, September 13, 1911.

In Great Britain considerable progress is being made under the Housing and Town Planning act passed two or three years ago. Local authorities are authorized to lay out new building areas in accordance with future community needs, subject to the approval of the local government board.

An important international city planning competition for the new capital city of the Commonwealth of Australia was announced in 1911, to close on January 31, 1912. The capital will be located in the district of Yass-Canberra, New South Wales, within a government district of 900 square miles, the center of which is 204 miles southwest of Sydney, 429 miles north east of Melbourne, and about 75 miles from the eastern coast of Australia. The site is 3000 feet above the sea level, and is divided into two parts by the Molonglo River. The competition called for plans which would take into account the fact that the city was to be political centre of Australia, and would provide for buildings accordingly, as well as parks, gardens, and residence, commercial, and industrial building zones.

The New Jersey legislature of '911 passed an enabling act which permits cities of the first class (Newark and Jersey City) to establish an unpaid planning commission of not over nine members to prepare a plan for the systematic development of the city, and to have authority to employ experts. The expenditures of such a commission in any one year might run to \$10,000, provided the city authorities saw fit to supply that sum. Newark has appointed such a commission, with David Grotta as chairman. St. Louis, also, has an official city planning commission, created at the close of 1911.

See also articles on GARBAGE AND REFUSE DISPOSAL, MUNICIPAL OWNERSHIP, PAVEMENTS AND ROADS, SEWAGE PURIFICATION, and WATER PURIFICATION.

COMMISSION PLAN CITIES TO JANUARY, 1912 *

Authority	Place	Date voted	Charter effect	Pop. or gen. law of 1910
S L	Maine Gardiner	1911	....	5,811
S L B	Massachusetts Gloucester	1908	....	24,398
S L B	Haverhill	1908	....	44,115
S L	Lawrence	1911	....	85,892
S L	Lowell	1911	....	106,294
S L B	Lynn	1910	....	89,336
S L	Taunton	1909	....	84,259
L B	New Jersey Hawthorne	1911	S.L.	2,400
L B	Irrington	1911	S.L.	11,877
L B	Margate City	1911	S.L.	129
S L	Ocean City	1911	S.L.	1,950

Authority 1	Place	Date voted 2	Charter 3 Date in or gen- effect eral law of	Pop. Census of 1910	Authority 1	Place	Date voted 2	Charter 3 Date in or gen- effect eral law of	Pop. Census of 1910
S L B	Passaic	1911	1911 S.L.	54,773	S L B	Anthony	1909	1909 S.L.	2,669
S L B	Ridgewood	1911	1911 S.L.	5,416	S L B	Caldwell	1909	1909 S.L.	2,205
S L B	Trenton	1911	1911 S.L.	96,815	S L B	Chanute	1911	..... S.L.	9,272
S L B	Maryland				S L B	Cherryvale	1910	1911 S.L.	4,304
S L B	Cumberland	1910	1910	21,839	S L B	Coffeyville	1909	1910 S.L.	12,687
S L B	West Virginia				S L B	C'ell Grove	1911	..... S.L.	2,545
S L B	Bluefield	1909	1909 C.	11,188	S L B	Dodge City	1910	1911	3,214
S L B	Huntington	1909	1909 C.	31,161	S L B	Emporia	1910	1910 S.L.	9,058
S L B	Parkersburg	1911	1911 C.	17,842	S L B	Eureka	1910	1910	2,333
S L B	North Carolina				S L B	Girard	1910	1910 S.L.	2,446
S L B	Greensboro	1911	1911 C.	15,895	S L B	Hutchinson	1909	1909 S.L.	16,364
S L B	High Point	1909	1909 C.	9,525	S L B	Independ'e	1909	1909 S.L.	10,480
S L B	Wilmington	1911	1911 C.	25,748	S L B	Iola	1910	1910 S.L.	9,032
S L B	South Carolina				S L B	Kansas City	1909	1910 S.L.	82,331
S L B	Columbia	1910	1910 S.L.	26,319	S L B	Leavenw'h	1908	1908 S.L.	19,363
S L	Georgia				S L B	Manhattan	1911	..... S.L.	5,722
S L	Cartersville	1911	..... S.L.	4,067	S L B	Marion	1910	1910 S.L.	1,841
L	Marietta	1911	.....	5,949	S L B	Neodosha	1910	1911 S.L.	2,872
L	Florida				S L B	Newton	1910	1910 S.L.	7,862
L	Green Cove				S L B	Parsons	1909	1910 S.L.	12,463
L	Springs	1911(?)	..	1,319	S L B	Pittsburg	1910	1910 S.L.	14,755
L	Passagrille	1911(?)	..	Not given	S L B	Pratt	1911	..... S.L.	3,302
S L B	Alabama				S L B	Topeka	1909	1910 S.L.	43,684
S L B	Birmingham	1911	1911 S.L.	132,695	S L B	Wellington	1910	1910 S.L.	7,034
S L B	Cordova	1911	..... S.L.	1,747	S L B	Wichita	1909	1909 S.L.	52,450
S L B	Hartsell	1911	..... S.L.	1,374	S L	Nebraska			
S L B	Huntsville	1911	..... S.L.	7,611	S L	Beatrice	1911	.....	9,356
S L B	Mobile	1911	..... S.L.	51,521	S L	Omaha	1911	..... S.L.	124,096
S L B	Montgomery	1911	1911 S.L.	38,136	S L B	North Dakota			
S L B	Talladega	1911	..... S.L.	5,854	S L B	Bismarck	1909	1909 S.L.	5,443
S L	Tuscaloosa	1911	..... S.L.	8,407	S L B	Mandan	1907	1907 S.L.	3,873
S L B	Mississippi				S L B	Minot	1909	1909 S.L.	6,188
S L B	Clarksdale	1910	1911 S.L.	4,079	S L B	South Dakota			
S L B	Gulfport	1911	..... S.L.	6,386	S L B	Aberdeen	1911	1911 S.L.	10,753
S L B	Hattiesburg	1910	1911 S.L.	11,733	S L	Canton .....	.....	..... S.L.	2,103
S	Laurel	1911(?)	..	8,465	S L B	Chamberlain	1910	1910 S.L.	1,275
S L B	Louisiana				S L B	Dell Rapids	1910	1910 S.L.	1,367
S L B	Shreveport	1910	1910 S.L.	28,015	S L B	Huron	1910	1910 S.L.	5,791
S L B	Tennessee				S L B	Lead	1911	..... S.L.	8,392
S L B	Chattanooga	1911	..... C.	44,604	S L B	Pierre	1910	1910 S.L.	3,656
L	Etowah .....	.....	.....	1,685	S L B	Rapid City	1910	1910 S.L.	3,854
S L B	Knoxville	1911	1912 C.	26,346	S L B	Sioux Falls	1908	1909 S.L.	14,094
S L B	Memphis	1909	1910 C.	131,105	S L B	Vermillion	1910	1910 S.L.	2,187
L	St. Elmo	1911	1911 C.	2,426	S L B	Yankton	1910	1910 S.L.	3,787
S L	Kentucky				S L B	Wyoming			
S L B	Lexington	1911	1912	35,099	S L B	Sheridan	1911	1912	8,408
S L B	Newport	1910	..... S.L.	30,309	S L B	Montana			
L	Michigan				S L B	Missoula	1911	1911 S.L.	12,869
L	East Jordan	1911	..... H.R.L.	2,516	S L B	Texas			
L	Flint .....	.....	..... H.R.L.	38,550	S L B	Ablene	1911	..... S.L.	9,204
S L B	Fremont	1911	.....	2,009	S L B	Aransas Pass	1910	1910 S.L.	1,197
S L B	H'bor Beach	1910	..... H.R.L.	1,556	S L B	Austin	1909	1909 C.	29,860
S L B	Pontiac	1911	..... H.R.L.	14,532	S L B	Barry	1910	1910 S.L.	Not given
S L B	Port Huron	1910	1911 C.	18,863	S L B	Beaumont .....	.....	.....	20,640
S L B	Wyandotte	1911	1911	8,287	S L B	Corpus			
L	Illinois				S L B	Christi	1909	1909 C.	8,222
S L B	Braceville	1911	1911 S.L.	971	S L B	Dallas	1907	1907 C.	92,104
S L B	Carbondale	1911	1911 S.L.	5,411	S L B	Denison	1907	1907 C.	13,632
S L B	Clinton	1911	1911 S.L.	5,165	L B	Elkhart	1910	1910 S.L.	Not given
S L B	Decatur	1911	1911 S.L.	31,140	L B	El Paso	1907	1907 S.L.	39,279
S L B	Dixon	1911	1911 S.L.	7,216	S L B	Ft. Worth	1907	1907 S.L.	73,312
S L B	Elgin	1911	1911 S.L.	25,976	S L B	Galveston	1901	1901 S.L.	36,981
S L B	Forest Park	1911	1911 S.L.	6,594	S L B	Greenville	1907	1907 S.L.	8,850
S L B	Hamilton	1911	1911 S.L.	1,627	L B	Harlingen	1910	1910	Not given
S L B	Hillsboro	1911	1911 S.L.	3,424	S L B	Houston	1905	1905 C.	78,800
S L B	Jacksonville	1911	1911 S.L.	15,326	S L B	Kennedy	1910	1910 S.L.	1,147
S L B	Kewanee	1911	1911 S.L.	9,307	L B	Lyford	1910	1910 S.L.	Not given
S L B	Moline	1911	1911 S.L.	24,199	S L B	McAllen	1911	1911 S.L.	Not given
S L B	Ottawa	1911	1911 S.L.	9,535	S L B	Marble Falls	1910	1910 S.L.	1,061
S L B	Pekin	1911	1911 S.L.	9,897	S L B	Marshall	1909	1909 C.	11,452
S L B	Rochelle	1911	1911 S.L.	2,732	L	Orange .....	.....	.....	5,527
S L B	Rock Island	1911	1911 S.L.	24,335	S L B	Palestine	1909	1909 C.	10,482
S L B	Springfield	1911	1911 S.L.	51,678	S L B	Pt. Arthur	1911	.....	7,663
S L B	Sp'g Valley	1911	1911 S.L.	7,035	S L B	Port Lavaca	1910*	1909* S.L.	1,699
S L	Waukegan	1911	1911 S.L.	16,069	S L B	San Benito	1911	1911 S.L.	Not given
S L B	Wisconsin				L B	Spur	1911	.....	Not given
S L B	Appleton	1911	1911 S.L.	16,773	L B	Sherman .....	.....	.....	12,412
S L B	Eau Claire	1910	1910 S.L.	18,310	L B	Terrell	1910	1911 S.L.	7,050
S L	Oshkosh	1911	.....	33,062	L B	Waco	1909	1909 C.	26,425
S L B	Iowa				S L B	Oklahoma			
S L B	Burlington	1909	1910 S.L.	24,324	S L B	Ardmore	1908	1909 H.R.C.	8,618
S L B	Ced. Rapids	1907	1908 S.L.	32,811	S L B	Bartlesville	1910	1910 H.R.C.	6,181
S L B	Des Moines	1907	1908 S.L.	86,368	S L B	Duncan	1910	1910 H.R.C.	2,477
S L B	Fort Dodge	1910	1911 S.L.	15,543	S L B	Enid	1909	1909 H.R.C.	13,799
S L B	Keokuk	1909	1910 S.L.	14,008	S L B	El Reno	1910	1911 H.R.C.	7,872
S L B	Marshall'tn	1910	1911 S.L.	13,374	S L B	Guthrie	1911	1911 H.R.C.	11,654
S L B	Sioux City	1910	1910 S.L.	47,828	S L B	Holdenville	1911	..... H.R.C.	2,296
S L B	Minnesota				S L	Lawton	1911	..... H.R.C.	7,788
S L B	Faribault	1911	1911 H.R.C.	9,001	S L B	McAlester	1910	1910 H.R.C.	12,954
S L B	Mankato	1910	1910 H.R.C.	10,365	S L B	Miami	1910	1910 H.R.C.	2,907
S L	St. Cloud	1911	.....	10,600	S L B	Muskogee	1910	1911 H.R.C.	25,278
S L B	Kansas				S L B	Okla. City	1911	1911 H.R.C.	64,205
S L B	Abilene	1910	1910 S.L.	4,118	S L B	Purcell	1910	1911 H.R.C.	2,740

Authority ¹	Place	Date voted ²	Date in effect ³	Charter ⁴	Pop. Census 1910
S L B	Sapulpa	...1910	1910	H.R.C.	8,283
L	Stillwater	...1911	...	H.R.C.	3,444
S L B	Tulsa	...1908	1909	H.R.C.	18,182
S L B	Wagoner	...1910	1911	H.R.C.	4,018
	Colorado				
S L B	Col. Springs	1909	1909	H.R.C.	29,078
L B	Gd. Junction	1909	1909	H.R.C.	7,754
L	Pueblo	...1911	...	H.R.C.	44,395
	New Mexico				
S L	Roswell	...1910	...	S.L.	6,172
	Washington				
S L	Centralia	...1911(?)	...	...	7,311
S L	Chehalis	...1911	...	...	4,507
S L B	Hoquiam	...1911	1911	S.L.	8,171
S L	No. Yakima	...1911	...	...	14,082
L	Olathe	...1911	(No such post office)	...	3,000
S L B	Spokane	...1910	1911	H.R.C.	104,402
S L B	Tacoma	...1909	1910	H.R.C.	83,743
S L	Walla Walla	1911	...	H.R.C.	19,364
	Oregon				
S L B	Baker City	...1910	1910	H.R.C.	6,742
	California				
S L B	Berkeley	...1909	1909	H.R.C.	40,434
S L B	Modesto	...1910	1911	H.R.C.	4,034
S L B	Monterey	...1910	1911	H.R.C.	4,923
S L B	Oakland	...1910	1911	H.R.C.	150,174
B	Pomona	...1911	1911	H.R.C.	10,207
L	Riverside	...	...	H.R.C.	15,212
S L	Sacramento	1911	...	H.R.C.	44,696
S L B	San Diego	...1909	1909	H.R.C.	39,578
S L B	San Luis				
	Obispo	...1910	1911	H.R.C.	5,157
S L B	Santa Cruz	...1911	1911	H.R.C.	11,146
S L	Stockton	...1911	...	H.R.C.	23,253
S L	Vallejo	...1911	1911	H.R.C.	11,340
	Utah				
S L B	Logan	...1911	...	S.L.	7,522
S L B	Murray	...1911	...	S.L.	4,057
S L B	Ogden	...1911	...	S.L.	25,580
S L B	Provo	...1911	...	S.L.	8,925
S L B	Salt Lake City	...1911	...	S.L.	92,777
	Idaho				
L	Boise	...	...	...	17,358
S L B	Lewiston	...1907	1907	C.	6,043

* So given by Bradford.

* This list is based primarily on one kindly supplied by The National Municipal League, which included for most of the places all the classes of information given in the table except the dates the plan went into operation. The league list was checked and slightly extended by a list of names of cities only, supplied by The Short Ballot Organization, which list was understood to include only such cities as comply with a fixed standard for commission government, as verified by correspondence or by study of charters or other statutes. Both the lists named had been revised to about January 12, 1912. The table formed as thus far stated was further checked, some gaps in "date voted" and "charter or general law" columns filled and the "date in effect" column added from one of the many detailed tables in Bradford's "Commission Government in American Cities," which tables appear to have been brought down to about the middle of 1911. The first or left-hand column of the accompanying table indicates which one, two or three of the authorities cited include the various cities in their list, but does not indicate what other of the information given is thus vouched for. As a rule, it will be noted that all three authorities list each city, except for cities reported as having adopted commission government in 1911. Many of such adoptions were too late for the Bradford list; while some appearing in the league but not in the short ballot list were doubtless absent from the latter pending verification.

¹ S=Short Ballot Organization; L=National Municipal League; B=Bradford; all as explained in the preceding note.

² Date voted generally means the date of acceptance by the locality, by popular vote; but in some cases it is the date of final action in framing a home rule charter (see next note) or possibly of the enactment of a legislative charter.

³ As a rule Charter means a State legislative grant, subject to local adoption by popular vote. Home Rule Charter means a charter framed by a popularly authorized local charter commission, instead of one passed by the State legislature. State Law means a general act, usually subject to adoption by any municipal corporation within the class or classes specified in the act.

REFERENCES. On the Commission Plan see Beard's *Loose-Leaf Digest of Commission Plan Charters* (New York, 1911); Woodruff's *City Government by Commission* (New York, 1911); Bradford's *Commission Government in American Cities* (New York, 1911); symposium on commission government in *Annals of the American Academy of Political and Social Science* (Philadelphia, 1911); and MacGregor's *City Government by Commission* (Madison, Wis., 1911). On City Planning see Mawson's *Civic Art* (London and New York, 1911), a sumptuously illustrated folio. During the year there was published the second volume of Wilcox's *Municipal Franchises*, a comprehensive review of the subject, with classified digests of many franchises of various classes. For the officials and activities of British cities see *Municipal Year Book of the United Kingdom*, an annual of many years' standing (London) and for information on health administration in Great Britain see *The Public Health Directory* (1911). British water-works and gas-works directories are published annually in London; and American gas, electric lighting, and street railway directories in New York. The Bureau of the Census is continuing its *Statistics of Cities 30,000 Population and Upwards*, but 1908 was the latest of these bulletins available to the close of 1911. State collections of municipal statistics are issued annually by Massachusetts, New York, Ohio, Indiana, and Iowa, and by the Province of Ontario, Canada. Child's *Short Ballot Principles* (Boston, 1911) may be consulted by those interested in the movement to secure greater responsibility and efficiency in municipal government by reducing the number of elective officers.

MUNICIPAL LEAGUE, NATIONAL. The annual meeting for 1911 was held in Richmond, Va., November 13-17. President Foulke's annual address was devoted to a discussion of efficient municipal government, describing the administration of the city of Frankfort-on-the-Main, Germany, the mayor of which, Dr. Addicks, is a member of the National Municipal League.

Extended reports were read from the committees on excess condemnation, the selection and retention of experts in city government, liquor, the commission government of cities, civic education, city finances, municipal health and sanitation, municipal reference libraries and archives. Among the questions discussed at length were housing and morals, civic surveys, a model street railway franchise, the initiative, referendum, and the recall. Dr. Albert Bushnell Hart, the chairman of the executive committee, reported a membership of about 2500. The first issue of the *National Municipal Review* was published on January 1, 1912, under the editorship of Clinton Rogers Woodruff.

The league has also begun to issue through D. Appleton & Co. volumes in a National Municipal Series. Three have been published, *City Government by Commission*, *Municipal Utilities*, and the *Initiative, Referendum, and Recall*.

The following are the officers of the league for 1911-1913: President, William Dudley Foulke, Richmond, Ind.; vice-presidents, Jane Addams, Chicago; H. D. W. English, Pittsburgh; William Kent, Kentfield, Cal.; Camillus G. Kidder, New York; A. Lawrence Lowell, Harvard University; George McAneny, New York; Charles Richardson, Philadelphia; treasurer, George Burnham, Jr., Philadelphia; secretary, Clinton Rogers Woodruff, Philadelphia.

The next annual meeting will be held in Los Angeles in July, 1912. A Cincinnati prize was established for the best annual essay presented by a student of the University of Cincinnati. The Baldwin prize essay for 1911 was awarded to George Herbert McCaffrey, of the junior class, Harvard University, for his essay on *The Administration of the Police Department in Some City of the United States with a Population of over 200,000*. The first school prize was awarded to Philip Wager Lowry, of the Erie high school, for the best essay on *The Immigrant in My City*, and the second prize to Miss Flora Harrington, of the Kansas City, Kan., high school.

MUNICIPAL OWNERSHIP. Few notable changes in the municipal ownership field have taken place for some years past. There continues to be a strong, but generally quiet movement for municipal ownership, particularly of water-works. The movement in all classes of municipal utilities would doubtless be more rapid were it not for the increasing number and efficiency of public utility commissions. These boards have increased in five years from two or three to as many score, and most of them increase yearly in strength through added powers, funds, experience, public confidence, and improvement in technical staff.

A notable tribute to the efficiency of public utility commissions and the relief they afford to the courts, and also a pronounced declaration in favor of municipal ownership as a means of lessening the work of both commissions and courts, was expressed in an opinion of a federal judge, handed down late in 1911, in a water rate case which involved the city of Des Moines and the Des Moines Water Works Company. The remarks of the judge were all the more pertinent because these two parties have been in more or less constant litigation over water rates for the past twenty years.

The agitation for municipal ownership of water works of San Francisco, noted in previous issues of this YEAR BOOK, continues. The city has continued its preliminary work on developing a supply from the Tuolumne River. Towards the end of his term of office, late in 1911, Mayor McCarthy, who on assuming office was largely responsible for the adverse popular vote on buying the works of the Spring Valley Water Company, caused a resolution to be introduced in the board of supervisors (city council) looking to negotiations for buying the works.

The successful operation of municipal garbage reduction plants at Cleveland and Columbus, Ohio (see GARBAGE AND REFUSE DISPOSAL) is noteworthy because until recently all such plants were privately owned and operated, and data as to financial and other operating results were not available. Garbage reduction works recover grease and fertilizer base for sale, and hence conduct manufacturing operations on a considerable scale—a thing which it has been held is beyond the capabilities of city governments. Another unusual but increasing kind of public ownership is municipal asphalt plants for the construction of street pavements. This work was for many years largely monopolized, both through ownership of certain asphalt deposits, which alone, it was claimed, were suitable for street pavements, and through alleged proprietary knowledge of methods of preparing and laying the asphalt. The commissioners of

the District of Columbia, in presenting their report for 1910-11, included an allowance for an asphalt plant in their estimates for the fiscal year 1912-13, and stated that municipal asphalt plants are now in use in Detroit, Mich.; Columbus and Dayton, Ohio; Indianapolis, Ind.; Kansas City, Kan.; Denver, Col.; Seattle, Wash., and elsewhere.

MUNKITTRICK, RICHARD KENDALL. An American author and humorist, died October 17, 1911. He was born in Manchester, England, in 1853, and was educated in public and private schools. He removed to the United States, and from 1881 to 1889 was on the staff of *Puck*. He was the editor of *Judge* from 1901 to 1905. He was the author of *Farming* (1891); *The Moon Prince and Other Nabobs* (1893); *New Jersey Arabian Nights* (1893); *The Acrobatic Muse* (1896), and *The Slambangaree* (1898). He was a contributor of prose and verse to the leading periodicals.

MURPHY, EDWARD, JR. A former United States senator from New York, died August 3, 1911. He was born in Troy, N. Y., in 1836, and was educated in the parochial schools of that city, and studied for a time at Montreal College with the intention of entering the Catholic priesthood. He abandoned this idea, however, and entered Fordham University, from which he graduated with high honors. Returning to Troy, he entered his father's brewing business and at once began to take an active part in politics. In 1875 he was elected mayor of Troy and was reelected in 1877, 1879, and 1881. His friends included Grover Cleveland, Roswell P. Flower, David B. Hill, and other leaders of the Democratic party of that period. In recognition of his services to the party he was sent to the United States Senate in 1893. On the expiration of his term he returned to Troy and devoted himself to business enterprises, which were of considerable magnitude. Several years before his death he retired from active business.

MUSIC. It may be useful to preface the record of events connected with music in 1911 with a few notes of the most important happenings in the few years previous. In 1907 Strauss's *Salome* was produced for the first time in America at the Metropolitan Opera House, and aroused such opposition that it was withdrawn after one performance. In 1908 Heinrich Conried retired as director of the Metropolitan Opera House, and was succeeded by Giulio Gatti-Casazza and Andreas Dippel as joint directors. In the same year Oscar Hammerstein opened a new opera house in Philadelphia, while at his Manhattan Opera House two new singers appeared for the first time before an American audience, Tetrassini and Mary Garden. In 1909, owing to the keen rivalry between the Manhattan and the Metropolitan Opera House in New York City, the latter greatly increased its forces in all departments. A feature of this year was a series of more intimate operas given at the New Theatre. The New York Philharmonic Society was entirely reorganized under Gustav Mahler. In this year also a new opera house was opened in Boston. In 1910 the rivalry between the two opera houses in New York was ended by the sale of Mr. Hammerstein's interests to the Metropolitan Opera House, with the understanding that Mr. Hammerstein was not to give grand opera again

in the United States for a period of years. New opera houses were opened in Chicago and Montreal. The \$10,000 prize offered by the Metropolitan Opera House in 1908 for the best opera written by an American was won in 1910 by Horatio Parker for his opera, *Mona*.

THE OPERA TRUST. Aside from matters purely artistic, the chief interest of the musical world was centred, in 1911, upon the activities of the great Milan operatic trust, which is controlled by the publishing house of Ricordi. For years this trust had quietly increased and strengthened its influence, until it was in absolute control of all affairs regarding Italian opera throughout the world. It was this combination that forced all the leading opera houses to give such undue prominence to the works of Puccini, and practically shut the doors of Italian opera houses against all works of foreign composers. Wolf-Ferrari, an Italian by birth, whose music was written to Italian texts, but who happens to have a German publisher, was kept successfully out of Italy. The significant event that weakened the power and undermined the influence of the trust was the refusal of Italian audiences to accept Puccini's latest work, *The Girl of the Golden West*. Some enterprising German publishers saw their opportunity, and at once invaded Italy. In spite of these drawbacks the trust became more arrogant than ever by raising their terms for the production of Puccini's works. The American opera houses were asked not only to pay \$500 for each performance, but also to guarantee a certain number of performances, irrespective of the box office receipts. The Metropolitan Opera House at once withdrew *The Girl of the Golden West*, which had been selected for the opening night of the season, and substituted *Aida*. Mr. Dippel, the director of the Chicago-Philadelphia Opera, protested even more emphatically; he at once notified the trust that all of Puccini's operas would be eliminated from his repertoire for the coming season, and he has kept his word.

SOCIÉTÉ DES AUTEURS, ETC. In striking contrast to the methods employed by the Milan trust are those of the *Société des Auteurs, Compositeurs et Editeurs de Musique* of Paris. This society was originally established about sixty years ago for the protection of French composers and publishers, but has gradually grown into an international association. Its object has always been to enforce payment of fair royalties for the public performances of works by its members. After the passage, in 1909, of a new and more stringent copyright law in the United States the French society established on January 1, 1911, a branch at New York. Before that time America had been notoriously lax in the payment of royalties for public performances of works by foreign composers, and the attempted enforcement of the law met with violent opposition. Several law suits resulted. By the end of the year the Supreme Court handed down a decision sustaining the claims of the French organization. During the past year the *Société* collected almost five million francs. It may be of interest to note that one of the American members, Mr. Sousa, received a check of 14,000 francs for public performances of his works in France.

THE UNITED STATES

ARTISTS: INSTRUMENTAL. A newcomer was the Russian violinist, Efrem Zimbalist, who made

his American debut in Boston with the Boston Symphony Orchestra. Although he had chosen a rather uninteresting and little known work, Glazounow's *Concerto in A minor*, he at once demonstrated that he belongs in the same class as his compatriot, Elman, who was again heard in 1911. It was interesting to hear these two artists (neither of whom is much over twenty) in succession. Both are not only marvelous technicians, but consummate artists. Elman is perhaps more richly gifted by nature; he plays with greater brilliancy and dash. What Zimbalist lacks in this respect he makes up in concentration and intensity.

After an absence of two years Albert Spalding was heard again. It was evident that his style had broadened. Kubelik again drew record houses. This tour was announced as a farewell tour, for it was stated that all seasons until 1915 were already booked and that then he would retire.

The year offered much variety in piano recitals. While no new pianists were heard, the public was well pleased to hear established favorites. First of all was Busoni, who if such a thing were possible, added to his fame. He gave a recital of Liszt's compositions, which was characterized as stupendous. Hitherto, Friedheim was regarded as the unequaled Liszt player; henceforth he must share his laurels with Busoni. But the public did not desert the older idol. Whenever Friedheim appeared he was greeted by large and enthusiastic audiences. A noteworthy event was the masterly performance by Harold Bauer of Brahms's *D minor concerto, op. 15*. Although first played by Brahms himself in 1859, New York had heard only two performances, by Ansoerge and Joseffy. Sigismund Stojowski heightened his enviable reputation by the scholarly rendition of a series of five historical recitals, which covered the entire field of piano composition from Bach to Debussy. De Pachmann, Hofmann, Borchard, and Mmes. Merö and Bloomfield-Zeisler also delighted their audiences by their well-known mastery. The 'cello was represented by Boris Hambourg, Alwin Schroeder, Leo Schulz, and Hans Kronold. Hambourg attracted special attention by his performance of older compositions, which he had discovered in various museums, and played in his historical recitals in London.

VOCAL. This year America made the acquaintance of another great German lieder singer, whose reputation in Europe equals that of Wüllner. This artist was Ludwig Hess. His first appearance was made in a Wagner programme with the New York Philharmonic Society, when he at once met with emphatic success. Each subsequent appearance, whether in recital or with orchestra, was a veritable triumph. By nature the artist is gifted with a beautiful tenor voice, which he handles with perfect art. The few concerts given by Wüllner (only one recital in New York) proved that this rare artist has lost none of his extraordinary drawing power. Von Warlich's art also found many warm admirers. Mmes. Sembrich and Schumann-Heink added to the attractions of the season. The success of the lieder singers seems to continue to attract the stars of the opera, for Clément, Whitchill, Renard, and MacCormack made their first appearance in recital. The latter confined himself to a programme of Irish songs, while in regard to Renard, the consensus

of opinion was that his art shows to better advantage on the stage. Mme. Gadski celebrated triumphs, both in recital and as soloist with orchestra. Mme. Nordica sang only in orchestral concerts. Both these artists appeared in New York within the same week as soloists in a Wagner programme, the former with the Philharmonic, the latter with the Symphony Society. Elsa von Wolzogen aroused considerable interest by her recitals of folk-songs of all nations, when she accompanied herself on the lute.

ORCHESTRAL CONCERTS. The New York Philharmonic Society sustained a severe loss through the death of its renowned conductor, Gustav Mahler (q. v.), who had brought the organization to a high degree of efficiency. Owing to Mahler's protracted illness, the last concerts of the spring season were directed by the concert master, Theodore Spiering. In the fall the society began its new season under Josef Stransky, one of the conductors of the Hamburg Opera, who gives every promise of being capable of following out the policy of his illustrious predecessor. If there is one thing in which he excels in particular, it is the art of accompanying a soloist. At the opening concert in the fall a fitting tribute was paid by the society to the memory of its departed leader, with the rendition of the funeral march from Mahler's *Fifth Symphony*.

Walter Damrosch, the conductor of the Symphony Society, has always shown a rare gift in arranging programmes. In 1911 he gave Wagner's early *Symphony in C* as the principal number. The concert began with Beethoven's *First Symphony*, and ended with excerpts from Wagner's last work, *Parsifal*. One concert was devoted entirely to works by Dvořák, the first time that the Bohemian master was honored in this way. The Russian Symphony Orchestra, Modest Altschuler conductor, began the new season with Karl Klein as concert master. The presence of this remarkable artist was evident at once in a marked improvement of the strings. The concert tour of the Cincinnati Symphony Orchestra, under Leopold Stokowski, was a tour of triumphs. Although only in its third season, this organization is regarded as the equal of the best symphony orchestras in America. The Theodore Thomas Orchestra of Chicago, under Frederick Stock, was heard in New York and Boston. In both cities it met with decided favor. Those who had heard this organization on its last visit under Thomas, some fifteen years ago, commented on the vast difference in the methods of the two conductors. San Francisco once more has a symphony orchestra, of which Henry Hadley is the musical director. Since the late Fritz Scheel left San Francisco, more than ten years ago, the city has been without an orchestra. As a result of Hadley's accepting the conductorship of the new organization, the Seattle Symphony Orchestra was left without a conductor, and unable to secure one for the new season. It is announced, however, that the concerts will be discontinued only for one season, and that the directors hope to have a new conductor for the fall of 1912. The Russian Balalaika Orchestra met with so much favor on their first tour that they made a second tour with equal success.

NOVELTIES. The much-heralded *Second Symphony in E flat*, by Elgar, had its first hearing in America by the Cincinnati Symphony Orchestra, under Stokowski, on November 24. Five days later it was performed by the Boston Symphony Orchestra, under Fiedler, and within

the same fortnight New York heard the work from Damrosch with the Symphony Orchestra. The verdict of competent critics pronounces this symphony less interesting than the first; and it may be remembered that the first one made very little impression. The new work is dull. Most of the themes lack physiognomy; some really good themes are spoiled in the development. The orchestration is monotonous and rather heavy. The entire work is singularly devoid of contrasts and climaxes. Practically the same opinion is expressed in regard to this composer's concerto for violin, which was played by Albert Spalding with the Theodore Thomas Orchestra, under Stock (in New York). The great promise held out by *The Dream of Gerontius* has not been fulfilled by Elgar.

A work that is a real addition to the literature of music is a new concerto, or rather Concertstück, for violin, by the veteran Max Bruch. This composition was played first by Maud Powell, at the Norfolk Music Festival, and received with great enthusiasm. It is one of the best works of Bruch, and might be ranked almost with this master's immortal first concerto. The New York Philharmonic Society, under Mahler, introduced an early work of Bizet, *Roma*, a suite for orchestra, which was well worth hearing. It is beautiful, graceful music, full of subtle and graceful touches. Mahler also played a charming overture by Pfitzner, *Das Käthchen von Heilbronn*, which was inspired by Kleist's drama. Under Stransky the same orchestra brought out Weingartner's *Third Symphony in E minor*. The composition did not reveal any new side of the distinguished Vienna conductor. He employs, as usual, an enormous orchestral apparatus, adheres to classical forms, and shows that he is a master of all technical resources. Unfortunately, nature has denied him the divine gift of melody. From the Symphony Society, under Damrosch, several novelties were heard. A *Symphony in C*, by Dukas, attracted more than passing attention. In form it follows the older methods, and shows splendid workmanship in the development of the thematic material. In its harmonic and rhythmic variety it is wonderful. A work of even greater promise was a *Symphony in E flat* by the young Rumanian, Enesco. The chief merit of this composition, aside from its masterly technical finish, lies in the inherent power of its themes. A *Symphonic Rhapsody* for piano and orchestra, by Stojowski, shows the composer as a refined, scholarly musician, who expresses himself in an artistic manner. The Boston Symphony Orchestra, under Fiedler, performed a *Comedy Overture* by Reger, which proved itself a sort of Chinese puzzle to many an intelligent musician. A novelty of considerable merit, which was heard from the Russian Symphony Orchestra, under Altschuler, was a *Finnish Rhapsody* by Kajanus. Kubelik, in a special concert, when the orchestra was directed by Nahan Franko, introduced a new concerto for the violin, in C minor, by his countryman, J. B. Förster. The work was very long and very difficult, but rather uninteresting.

CHORAL SOCIETIES. The Oratorio Society of New York, Frank Damrosch conductor, brought out Franck's monumental *Les Béatitudes*, a work full of dramatic intensity. It was sung in English. Only once before was this composition heard in New York, in German (1900). The same society sang Saint-Saëns's *150th Psalm*.



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ARTHUR FRIEDHEIM
Pianist



Photograph by Matzene, Chicago

ALBERT SPALDING
Violinist



EFREM ZIMBALIST
Violinist



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LILLIAN NORDICA
Soprano

FOUR MUSICAL ARTISTS PROMINENT IN 1911

which was a real novelty for America, and created a deep impression. The choral writing is remarkably effective. Occasionally the composer took advantage of opportunities to introduce some Oriental coloring, of which he seems not only very fond, but has proven himself an unsurpassed master. Damrosch also gave an acceptable performance of Grell's seldom-heard and extremely difficult *Missa Solemnis*. The Apollo Club of Chicago, under Wild, introduced Woyrsch's *Totentanz*, a work that gave great pleasure in spite of the fact that it lacked originality. The MacDowell Club of New York, under Schindler, revived Liszt's *Legend of St. Elizabeth*, in honor of the Liszt centenary.

CHAMBER MUSIC. In reviewing the musical events of former years, attention has been called to the steady growth of musical culture and appreciation throughout the States, a growth that manifested itself through the establishment of permanent orchestras. From these orchestras, almost invariably chamber-music organizations were formed, which generally received hearty encouragement. It may safely be asserted, that to-day chamber-music constitutes an integral and important part of our musical life. In looking over the programme of the past year, one might almost be tempted to say, that the whole range of chamber-music literature of the last hundred years is represented. Among the many novelties some are worthy of notice. The Barrère ensemble of New York, an organization of wind instruments, introduced a very interesting quintet in B flat for piano, flute, clarinet, horn, and bassoon, by Rimski-Korsakoff. The Flonzaley Quartet brought out a string quartet by Ravel. The composition, of the ultra-modern French school, is designated as being written in the key of F; just why, it is difficult to tell. The composer modulates incessantly and revels in unresolved dissonances. Yet the work has much grace and piquancy. Reger's *Suite, op. 93*, was heard in one of the Beebe-Déthier sonata recitals. It met the usual fate of this composer's works: extravagant praise from some, absolute rejection from others.

A concert of unusual interest was given by Arthur Whiting. Works by Purcell, Bach, Handel, and Corelli were played upon the old instruments. Mr. Whiting played the harpsichord, Constance Edson, the violin, Georges Barrère the flute, and Paul Kefer the viola da gamba.

MUSIC FESTIVALS. At the fifty-fourth annual Worcester Festival, a new choral work by Reger, *The Nuns*, was heard under the direction of Arthur Mees. For once the critics agreed that here was a really beautiful work by that abstruse composer. A piano concerto by an unknown composer, G. F. Boyle, played by Ernest Hutcheson, found very marked favor. The seventh biennial festival of the National Federation of Musical Clubs was held at Philadelphia, and the prizes offered three years ago were distributed as follows (two prizes in each class): 1. Symphonies and Symphonic Poems: G. W. Chadwick, A. Oldberg. 2. Chamber music: H. A. Lang, H. V. Stearns. 3. Songs with orchestra, H. Parker, C. W. Cadman. The centenary of Liszt's birth was observed everywhere by both orchestral and choral societies, but especially by the pianists.

OPERA. At the Metropolitan Opera House, 160 performances were given from a repertoire of forty-two operas by twenty-two composers. Ac-

cording to nationality, these were divided as follows: Italian, fifteen works by eight composers; French, ten works by eight composers; German, fourteen works by four composers; American and Bohemian, one work each. Wagner, represented by nine works, led with thirty-three performances. Next in order came Puccini, four of whose works achieved thirty performances. Third ranked Verdi, with five works and twenty-one performances. The work most frequently given was Humperdinck's *Königskinder*, ten times. Next came Puccini's *Girl of the Golden West*, nine times; Puccini's *La Tosca* and Leoncavallo's *Pagliacci* were each given eight times; Verdi's *Aida* and Humperdinck's *Hänsel und Gretel*, seven times; Wagner's *Lohengrin* and *Tristan und Isolde*, Puccini's *La Bohème* and *Madama Butterfly*, and Ponchielli's *La Gioconda* each six times. Only two novelties were produced. Dukas' *Ariane et Barbe Bleue* (March 29), with Farrar and Wickham in the principal rôles, under Toscanini, was staged with lavish magnificence, but received with indifference. In the first place, there is no action. The music is a strange mixture of the established major and minor modes and the free tonality of Debussy, but it is lacking in form and melody. Thuille's *Lobetanz* (November 18), with Gadski and Jadowker as principals, and Hertz as conductor, met with a cordial reception. The work is not remarkable in any respect, but it is full of light, graceful music. By virtue of the system of exchange with the Chicago-Philadelphia company the subscribers of the Metropolitan House heard also *Il Segreto di Susanna*, *Natoma* and *Quo Vadis*.

A new departure that met with considerable favor was the introduction of a series of ballet performances given at popular prices on Tuesday nights. Several new artists were heard, among whom Heinrich Hensel, a heroic tenor, aroused the greatest enthusiasm. He made his début as Lohengrin, and at once was acclaimed as the legitimate successor of Alvary. Mme. Matzenauer made a splendid impression as Amneris, but it was not until she appeared in the Wagner rôles that her marvelous voice and dramatic powers were fully exhibited. No greater contralto has ever been heard at the Metropolitan. Meses. Langendorff and Orridge and Messrs. Weil and Griswold also proved themselves to be stars of the first magnitude. The conductors were Toscanini, Hertz, Sturani, Pasternaek, and Rothmeyer.

The Chicago-Philadelphia Opera Company gave 103 performances from a repertoire of thirty-one works by twenty composers. Verdi and Massenet, the former represented by six, the latter by three works, led with eighteen performances each. Four works of Puccini were given twelve times. These were heard in the spring, before Mr. Dippel eliminated this composer's works from his repertoire. Four novelties were produced, of which Wolf-Ferrari's *Il Segreto di Susanna* was the most important. The première took place (March 14) at the Metropolitan Opera House, under Campanini, with Caroline White and Sammarco as principals, and met with immediate favor. The composer goes back to the style of the old opera buffa, but employs modern methods. The music is very melodious, graceful, and sparkling. Concerning Victor Herbert's *Natoma* the most important item to be chronicled is the fact, that

the work is by an American composer, and was sung in English. It was first heard in Philadelphia (February 25), under Campanini, with Mary Garden and MacCormack in the leading rôles. The work itself is very conventional, harmonically uninteresting, and too often sinks to the level of the operetta. Some interesting local color is obtained through the employment of real Indian melodies. In Nougues' *Quo Vadis* (March 25), the attention is almost wholly absorbed by the gorgeousness of the stage pictures. The work had a magnificent production under Campanini, with almost all the stars of the company in the cast, which calls for not less than twenty-nine characters. The music impresses one as rather incidental than interpretative, although at times it rises to effective climaxes. The orchestration is rich and varied. Massenet's *Cendrillon* (November 6), under Campanini, with Maggie Teyte, Mary Garden, Dufranne and Scotti, proved a great popular success. Yet the work can hardly be called a grand opera, nor is it one of Massenet's best works. The music is very melodious and suave.

The Boston Opera Company gave eighty-seven performances from a repertoire of twenty-six operas by sixteen composers. Puccini led with twenty-four performances of five works. Verdi, who came next, had thirteen performances of five works. Only one novelty was heard: Converse's *The Sacrifice* (March 3), with Alice Nielsen and Constantino in the chief rôles and Wallace Goodrich as conductor. The music of this opera does not differ materially from that of the same composer's *Pipe of Desire*. While the influence of Wagner predominates, there are also reminiscences of other masters. The orchestration throughout is too heavy. Wagner's works, which are not included in the enumeration of the year's performances, were given in accordance with the system of exchange by the Metropolitan company.

EUROPEAN COUNTRIES

GERMANY. What dimensions the cultivation of music has assumed in Germany may be seen from the following statistics for 1911 compiled for the city of Berlin alone. Four operatic institutions gave over 800 performances; the number of concerts totaled 1096. These are classified as follows: Orchestral concerts, 173 (of which twelve were devoted exclusively to the purpose of introducing novelties); choral concerts, with orchestra, 100; chamber-music, 125; song recitals, 328; piano recitals, 240; violin recitals, 64; cello recitals, 15; organ recitals, 12. Together with this formidable record comes also the news of the establishment of a new operatic institution at Berlin, the Kurfürsten Oper, which was opened on December 8, with an excellent performance of Nicolai's *Merry Wives of Windsor*. The operatic event of the year was the première of a new opera by Richard Strauss, *Der Rosenkavalier* (Dresden, January 26), which was received with genuine enthusiasm. The work marks a return to the natural style and to acknowledged standards of musical beauty. There is a great deal of exquisite lyric melody; especially a trio for female voices in the last act is praised as one of the most beautiful strains written since the incomparable quintet from *Meistersinger*. It would be superfluous to comment on the marvelous skill of the orchestration in a work by the greatest of all orchestral colorists. Only one objection was

raised against the text; in certain portions the dialogue is spun out too long. Strauss himself subsequently made cuts, which reduced the time of performance by twenty minutes. In other German cities the Dresden success was repeated, with the only exception of Halle and Worms. In Berlin *Der Rosenkavalier* was not heard until November, when it was given again in its complete form. Massenet's *Don Quichotte* had its German Première at Nuremberg, and scored a genuine success. The same composer achieved another triumph with one of his earlier works, *Mamou*, which had not been heard before in Munich. A strong impression was made at Leipzig by Julius Bittner's *Der Musikant*, a work abounding in splendid dramatic situations. Humperdinck's *Königskinder* had its German première at Berlin, and was received with marked favor, though not with the enthusiasm that it had aroused in New York. Leoncavallo's *Maja*, in Berlin, was another addition to this composer's already long list of failures.

In looking over the programmes of the orchestral organizations, the admirers of Brahms cannot but feel gratified when they see how frequently that master's name appears. All the symphonies were played many times, and there was scarcely one violinist of note who did not offer his audience the violin concerto. Even the double concerto for violin and cello had several performances. This rising in popular favor—though by no means sudden—seems to be traceable to the remarkable success of the first great Brahms festival held in Munich during the preceding year. With the Berlin Philharmonic Orchestra, Liapunoff gave a memorial concert devoted to the works of Balakireff, some of which were heard for the first time in Germany. The deepest impression was made by a concerto for piano and orchestra, rendered by Leonid Kreutzer. With the same orchestra, Bruch conducted the first rendition of his new concerto for the violin, played by Willy Hess. Dvořák's *First Symphony in D minor* (written in 1874) was heard for the first time in Germany. A remarkable novelty was brought out by Nikisch in one of the Gewandhaus concerts. This was an *Ouverture zu einem Schauspiel*, op. 4, by Erich Korngold, that fourteen-year-old prodigy from Vienna. The work shows not only wonderful inspiration, but an astonishing skill in the development of the thematic material and the treatment of orchestral instruments. As yet the boy employs the Strauss idiom, but there are touches of decided originality. In Berlin he created nothing less than a sensation by his Trio for piano, violin, and cello in D, a piano sonata in E, and a suite for piano, *Märchenbilder*. Among those who heard this concert were Dr. Muck, Humperdinck, Sinding, and Mme. Sembrich. A unique work heard in Dortmund was Busoni's *Fantasia Contrapuntistica* (originally written for piano), arranged for organ and orchestra by Stock and Middel-schulte. Busoni has taken the last composition of Bach, a fragment intended to be a quadruple fugue, and completed it in Bach's spirit.

In Munich, Bruno Walter gave a memorial concert devoted to works of Mahler (q. v.). On this occasion Mahler's last completed composition was heard for the first time, *Lied von der Erde*, for tenor and alto solo with orchestra. The text is a German translation made from an English rendering of a Chinese original. The composer has divided this really excellent poem



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FOUR OPERA SINGERS PROMINENT IN 1911

into six parts, and treated the whole in his free symphonic style. The performance created a deep impression, and it is said that in this work are found some of Mahler's finest inspirations. The recent publication of Wagner's early *Symphony in C*, was followed by numerous performances in the principal cities. At Leipzig, Winderstein gave a Beethoven programme, containing a *Symphony in C*, the manuscript score of which was discovered during the summer by Fritz Stein in the archives of the University of Jena. Although the score contains no name, the name of Beethoven was found on one of the orchestral parts, and experts agree that it is not at all improbable that the symphony may be an early work of the great master. The work was also heard in Berlin. A concert of very unusual character was given by Dr. F. Behn in Mainz. From the fragments of ancient instruments contained in the Roman-Germanic Museum of that city, Dr. Behn had made faithful reproductions of instruments used by the Jews, Assyrians, Babylonians, Greeks, and Romans. The actual performance was interspersed with comments on the history and use of each instrument.

The musical festivals of the year were devoted principally to the works of Liszt, in honor of the centenary of the master's birth. The most elaborate of these was the annual festival of the *Allgemeiner Deutscher Musikverein* held at Heidelberg in October. Almost all the important orchestral and choral works were produced, and in the piano and song recitals many rarely heard compositions were revived. The conductors were Strauss, Schillings, Wolftrum, and Hansegger. Among the other artists were Busoni, Friedheim, Rislér, Kwast and Madame Kwast-Hodapp (pianists) and Weil, Schüller, Fischer and Mmes. Cahier, Dietz, Durigo (vocalists). Saint-Saëns had come specially from Paris to honor his former master. He played Liszt's transcription of his own famous *Danse Macabre*. By a curious coincidence this centenary celebration served at the same time to commemorate the fiftieth anniversary of the foundation of the association by Liszt. Weimar also observed the centenary in a worthy manner. Munich had the annual Mozart and Wagner festivals. The works selected were *Don Giovanni*, *Nozze di Figaro*, *Così fan Tutte*, *Il Seraglio*, *Bastien et Bastienne*, *La Clemenza di Tito*; *Tristan*, *Meistersinger*, and the Ring dramas. At Bayreuth the same works were given and *Parsifal*. Last, but not least, an event must be recorded that is not likely ever to be eclipsed in the annals of pianistic achievements. In Berlin Busoni gave a cycle of six recitals, in which he played almost all the original piano works and transcriptions of Liszt.

AUSTRIA-HUNGARY. The most important event was the five-day Liszt celebration in the Hungarian capital during October 21-25. Never before were so many of the world's greatest pianists heard in a single concert. Of course all were former pupils of the master. Those who appeared were Friedheim, D'Albert, Stavenhagen, Sauer, Rosenthal, Lamond, and Madame Menter. Siegfried Wagner conducted his grandfather's *Faust Symphony*. Liszt's songs were sung by Tilly Koenen, Lulu Myszigmeiner, and Burrian. The Vienna première of Strauss's *Rosenkavalier* was made the occasion of a Strauss festival week. Franz Steiner, with

Strauss himself at the piano, gave a song recital. At the opera *Salome* and *Elektra* were performed. The new work (in its shortened version) met with considerable success, but did not arouse the enthusiasm it has called forth everywhere in Germany. A new work heard at the opera, Guecchi's *Cassandra*, disclosed many points of similarity with the operas of Strauss, especially the *Rosenkavalier*. This fact in itself would call for no special comment, but it is known that *Cassandra* was finished before the *Rosenkavalier* was begun. After an absence of twelve years from the conductor's chair at the Imperial Opera, Hans Richter once more returned to his former place amid tumultuous applause. At a memorial concert Nedbal performed Mahler's first and fourth symphonies. At the Music Teachers' Convention in Vienna an interesting programme was rendered, which consisted of nothing but chorals and canons written five hundred years ago. The Männergesangverein produced for the first time Bruckner's *Abendzauber* (written in 1878). The work is described as very beautiful. The newly published symphony of Wagner was also heard. Although Weingartner has left Vienna, he still conducts the concerts of the Philharmonic Society.

ENGLAND. On November 13 Oscar Hammerstein opened his new London Opera House with a splendid performance of Nougues' *Quo Vadis*. As far as can be judged now, his policy seems to be the same as the one he pursued in his Manhattan Opera House in New York. Two of his American singers, Felice Lyne and Orville Harrold, immediately became popular favorites. At Covent Garden Franz Schalk of Vienna succeeded Richter as conductor of the Wagner works. Although his performances were criticised as lacking in brilliancy, the Wagner series proved the most satisfactory from a financial point of view. A new tenor, Heinrich Hensel, achieved extraordinary success by his interpretation of Siegfried. Both the public and the critics expressed their dissatisfaction with the poor ensemble and careless staging of the French and Italian works. Puccini's *Girl of the Golden West* was given with practically the same cast as in New York, and achieved the same success. Massenet's *Thais* was produced again after a lapse of twenty years. The Irish tenor, MacCormack, proved a great drawing card. Under the conductorship of Balling Leeds, Edinburgh, Manchester, and Glasgow heard for the first time the entire cycle of Wagner's Nibelungen dramas; in fact, it was the first time that the cycle was ever performed in Great Britain outside of London. Mr. Quinlan formed a new English opera company on the same scale as the Beecham company of the preceding year. He began his season in October in Liverpool and visited the principal towns of the provinces. For the first time in nine years London had again a great Music Festival at which a large number of works by English composers was heard. The feature of the festival was Elgar's *Second Symphony*, heard then for the first time. (See *United States, Orchestral Concerts*.) It was received rather coldly. Of the new works Granville Bantock's *Dante and Beatrice* made the most favorable impression. The larger works produced were Bach's *St. Matthew Passion*, *B minor Mass*, Elgar's *Dream of Gerontius*, Reger's *100th Psalm*, and Strauss's *Also Sprach*

Zarathustra. The soloists were Julia Culp, Kreisler, Casals, Bauer, Elwes, and Ben Davies. Henry Wood conducted. At the sixth triennial Festival of the Sheffield choir only one novelty, a dramatic cantata by Georg Schumann, *Ruth*, was heard and very well received. The Three Choirs' Festival at Worcester brought out four novelties by English composers, none of which made much impression. The past year was the last of Hans Richter's activity in England. In what esteem the veteran conductor is held was shown by the demonstrations and tumultuous scenes enacted at each of his farewell concerts in different cities. Richter's influence on the cultivation and development of musical taste in England has been greater than that of any other man, and can never be overestimated. When he first came to London, as Wagner's assistant, in 1877, musical conditions seemed hopeless. Beyond the oratorios of Handel and Mendelssohn practically nothing was known of music. Under such circumstances the young conductor began his career as the apostle of Beethoven and Wagner, with what success, the whole world knows to-day.

BIBLIOGRAPHY. Among the important books published during the year are the following:

BIOGRAPHICAL. A. W. Thayer: *Ludwig van Beethovens Leben*, translated by H. Deiters, revised by H. Riemann, Vol. III. (Leipzig). The work is now complete, Vols. IV. and V. having appeared in 1907 and 1908. It is the standard authority on the life of Beethoven. P. Bekker; *Beethoven* (Berlin). Chiefly an æsthetic and critical appreciation of the works. Profusely illustrated. J. A. Fuller-Maitland: *Brahms* (London). Scholarly and exhaustive. F. Graefinger: *Anton Bruckner: Bausteine zu seiner Lebensgeschichte* (Leipzig). F. Helouin and J. Picard: *Un Musicien Oublié, Catel, de l'Institut de France* (Paris). J. G. Prud'homme and A. Dandelot; *Gounod: Sa Vie et ses Œuvres* (Paris). The most comprehensive biography yet published. Cosima Wagner: *Liszt: Ein Gedenkblatt von seiner Tochter* (Munich). Contains personal reminiscences and some hitherto unpublished letters. A. Hervey: *Liszt* (London). Rather panegyric. J. Huneker: *Liszt* (New York). Authoritative. P. Stefan; *Mahler: Eine Studie über Persönlichkeit und Werk* (Munich). C. F. Glasenapp: *Das Leben Richard Wagners*. Vol. VI. (1877-1883) (Leipzig). This volume completes the most comprehensive life of Wagner, but not the most authoritative. Too diffuse. The older volumes, published many years ago, require revision. F. Pfohl: *Richard Wagner: Sein Leben und Schaffen* (Berlin). Comprehensive, appreciative, sane. One of the best and most reliable biographies of the master. Richard Wagner: *Mein Leben* (Munich). Published simultaneously in five languages, English translation in New York. A great disappointment. Many facts distorted. Goes only to 1864.

HISTORY OF MUSIC. M. Brenet: *Musique et Musiciens de la Vieille France* (Paris). R. Batka: *Allgemeine Geschichte der Musik* (Stuttgart), Vol. II. Very readable, and excellent as a reference book. C. Stumpf: *Die Anfänge der Musik* (Leipzig). A Schering: *Geschichte des Oratoriums* (Leipzig). Authoritative. A. Weissmann: *Berlin als Musikstadt* (Berlin). Profusely illustrated. Practically a history of German music from 1740 to 1911.

PHILOSOPHY, ÆSTHETICS, AND CRITICISM OF MUSIC. F. Auerbach, *Die Grundlagen der Musik* (Leipzig), an excellent scientific treatise; L. von Schroeder, *Die Vollendung des Arischen Mysteriums in Bayreuth* (Munich), a very scholarly and able comparison of the fundamental philosophical and ethical principles in the works of Wagner and the ancient Vedas; E. de Rey-Pailhade, *Essai sur la Musique et l'Expression Musicale, et sur l'Esthétique du Son* (Paris); M. Hehemann, *Max Reger* (Munich), a valuable study of modern musical thought; J. Hey, *Richard Wagner als Vortragsmeister* (Leipzig); M. Seiling, *Richard Wagner: Der Künstler und Mensch, der Denker und Kulturträger* (Leipzig).

MUSICAL INSTRUMENTS, INSTRUMENTATION. A. Dodge, *Pianos and their Makers* (London), an excellent and very full history of the instrument from its earliest beginnings to the modern electric automatic player; Charles Welch, *Six Lectures on the Recorder* (London), a complete history of the recorder and allied flutes; H. E. Krehbiel, *The Pianoforte and its Music* (New York); E. Teuchert and W. Haupt, *Musikinstrumentenkunde in Wort und Bild* (Leipzig), both historical and practical. A very remarkable feature is the addition of a full bibliography of each instrument.

MISCELLANEOUS. F. Prelinger, *Ludwig van Beethovens sämtliche Briefe und Aufzeichnungen*, Vol. V. (Vienna). The publication is now complete. W. Altmann, *Richard Wagners Briefwechsel mit seinen Verlegern*, Vol. I. (Leipzig). Vol. II. (Mainz). The volumes are uniform.

MUSKRAT. See ZOOLOGY.

MUTATION. See BIOLOGY.

MUTUAL SAVINGS BANKS. See SAVINGS BANKS.

MYERS, HENRY L. United States senator (Democrat) from Montana. He was born in 1862 in Cooper county, Mo. He was educated in private schools, and for a time taught school, at the same time studying law. He was admitted to the bar, and in 1893 removed to Hamilton, Mon., and there engaged in the practice of his profession. He served as prosecuting attorney, State senator, and district judge. He was serving his second term in the last named office when, on March 2, 1911, he was elected United States senator to succeed Senator Carter, Republican (see MONTANA). His term of service will expire in 1917.

MYTHOLOGY, BOOKS ON. See PHILOLOGY, CLASSICAL.

NANKING. See CHINESE EMPIRE.

NASH, EDWIN A. An American jurist, died July 23, 1911. He was born at Bedford, Conn., in 1836 and was educated at the Genesee Wesleyan Seminary, Lima, N. Y. In 1861 he was admitted to the bar in New York State. He was district-attorney from 1869 to 1873 and from 1878 to 1896 was county judge of Livingston county, N. Y. He served as justice of the Supreme Court of New York for the seventh district and justice of the Appellate Division for the fourth district from 1896 to 1906.

NASH, FRANCIS PHILIP. An American scholar and educator, died February 3, 1911. He was born in 1836 and graduated from Harvard College in 1856. He studied law at the Harvard Law School and in 1871 became professor of Latin at Hobart College. He remained

in this position until 1876. He again filled the same chair there from 1882 until he was made professor emeritus. He received the degree of LL. D. from Union College.

NASSAU. See **BATTLESHIPS.**

NATAL. A province of the Union of South Africa (q.v.). Provincial capital, Pietermaritzburg.

AREA, POPULATION, ETC. Area (estimate), 35,371 sq. miles. Population (1904), 1,108,754; census of May 7, 1911, 1,191,958 (98,582 white, 1,093,376 colored). Pietermaritzburg had (1911), 20,347 inhabitants; Durban, 60,187.

European pupils in government and inspected schools (1909), 12,444; schools for natives, 178 (15,335 pupils); schools for East Indians, 30 (3671 pupils).

INDUSTRIES. Estimated area under cultivation by Europeans, 451,638 acres; by natives, 500,000; by Indians, 42,000; total, 993,638. Area (European) under corn (1909), 155,215 acres (yield, 79,782 tons); under sugar-cane, 24,512 (86,790 tons); kafir corn, 4460 (2824 tons); oats, 900 (13,983 bushels); tea, 5909 (1,773,202 lbs.); tobacco, 642 (277,012 lbs.). Acres under orchards, 35,912. Livestock (1909): 31,586 horses, 210,412 cattle, 916,996 sheep, 135,848 goats, 25,738 swine. Wool clip (1909), 2,669,088 lbs. Coal output (1909), 1,786,583 tons (value at the mines, £633,604); of which 404,322 tons were exported, 152,018 were sent to neighbor colonies, and 835,496 tons were bunkered. Gold mined (1909), 1595 oz. (£6697).

COMMERCE, FINANCE, ETC. The oversea trade for calendar years and financial statistics for fiscal years ending June 30 of the year next following, are given below:

	1907	1908	1909
Imports	£ 7,765,029	£ 6,920,206	£ 7,789,919
Exports	3,168,850	3,062,479	3,916,476
Revenue	3,471,932	3,510,350	4,293,737
Expenditure ..	3,681,914	3,689,752	3,530,349
Debt	20,760,992	21,135,534	21,534,926

Leading imports (1909): Machinery, £727,385; haberdashery, £659,033; hardware, etc., £374,833; clothing, £352,186; cottons, £316,005; cereals and flour, £321,009; leather and manufactures, £285,270; beverages, £185,428. Exports: Bar gold from overland, £1,101,374; wool, £967,098; coal (bunker and cargo), £756,663; corn, £420,780; hides and skins, £260,777; bark wattle, £192,950; angora hair, etc., £52,569. Great Britain supplied imports and received exports valued at £4,258,783 and £2,027,785 respectively. Vessels entered (1909), 1175, of 3,123,776 tons; cleared, 1176, of 3,114,598. Railways (1909), 1034 miles; telegraph lines, 1996 (wires, 7151); telephone lines, 186 (wires, 2458); telegraph offices, 213; post offices, 404.

The province is governed by an administrator (1911, C. T. Smythe), aided by a provincial council and an executive committee.

ZULULAND (10,461 sq. miles) and the **NORTHERN DISTRICTS** territory (6931 sq. miles) are annexed to Natal.

NATION, CARRIE. An American woman suffragist and temperance enthusiast, died June 9, 1911. She was born in Kentucky. In 1900 she became conspicuous through a militant method of expressing her disapproval of the liquor traffic, when at Kiowa, Kan., she demolished three saloons. She at once became a national charac-

ter, and extended her activities to Topeka and Wichita, Kan., and then to other cities. She was imprisoned three times in Topeka and seven times in Wichita. She afterwards conducted a temperance paper at Oklahoma and lectured throughout the country. She also visited Great Britain, where she achieved considerable notoriety. She acquired a rather large amount of money and settled on a farm in Arkansas, where she remained until the time of her death.

NATIONAL ACADEMY OF DESIGN. See **PAINTING.**

NATIONAL ASSEMBLY, CHINESE. See **CHINESE EMPIRE.**

NATIONAL ASSOCIATION OF STATE LIBRARIES. See **LIBRARY PROGRESS.**

NATIONAL BANKS, RESOURCES AND LIABILITIES. On September 1, 1911, the report of the Comptroller of the Currency showed that there were 7301 national banks in the United States, having total resources of \$10,379,000,000. The loans and discounts amounted to \$5,863,000,000; of these one-third were time loans secured by paper with two or more individual or firm names; one-fifth were time loans secured by single-name paper; and one-fifth were time loans secured by stocks, bonds, and mortgages, the remaining one-fourth being demand loans. Slightly more than one-half of all the loans were credited to the reserve cities; 16.1 per cent. to New York, 7.7 per cent. to Chicago and St. Louis, and 26.7 per cent. to other reserve cities. These banks held \$707,204,000 of United States bonds to secure circulation; and \$42,152,000 of United States bonds to secure United States deposits. They held \$1,018,000,000 of bonds and securities other than United States bonds, this being an increase of 20 per cent. during the year. Of these bonds \$164,000,000 were State, county, and municipal bonds; \$361,000,000 were railroad bonds, and \$182,000,000 were other public-service corporation bonds. Among the resources of the national banks were \$744,614,000, due from approved reserve agents; \$399,509,000 due from national banks not reserve agents; and \$162,271,000 due from State banks and bankers. They held also \$298,180,000 of exchanges for the clearing-houses; they had \$479,140,000 in gold coin and gold certificates, the total specie, including gold, silver, and clearing-house certificates, was \$711,522,000. They held besides this \$183,953,000 of legal tender notes. Among the liabilities were capital stock paid in to the amount of \$1,025,000,000 and surplus and undivided profits to the amount of \$904,430,000. The national bank notes outstanding amounted to \$696,982,000, a change of little more than 2 per cent. during the year. The total amount due to other national and State banks was \$2,050,000,000. The individual deposits subject to check were \$4,479,000,000, other deposits being \$862,700,000.

OTHER STATISTICS. The amount of national bank circulation redeemed during the year was \$587,339,000, of which nearly one-half came from New York City and most of the remainder from principal reserve cities. The profits on national bank circulation ranged from .986 per cent. to 1.42 per cent., depending on the price of bonds upon which the circulation was passed. The expenses of maintaining the circulation included \$3,567,000 of semi-annual tax to the government and \$443,000 as the cost of redemption of notes at the treasury. In addition to these expenses the national banks paid \$492,000 as the

cost of examinations and about \$1,250,000 as the special corporation tax under the act of 1909. The total reserve held against deposits on September 1 was \$1,428,000,000, being 21.36 per cent. of the deposits. The greater part of this enormous sum was idle under the present system of requiring each bank to maintain its own reserve, but would be brought into use by the proposed reform of the banking system contained in the Aldrich plan. (SEE BANKS AND BANKING.) When classified according to capital, 27 per cent. of the banks were in the \$25,000 class; 36 per cent. had more than \$25,000, but less than \$100,000 capital; and 9 per cent. had more than \$250,000 capital. The total gross earnings of all national banks for the year ending June 30, 1911, were \$428,973,000; when losses and expenses were deducted net earnings to the amount of \$156,985,000 were left; this equalled 9.35 per cent. on the combined capital and surplus. The amount of dividends actually paid was 6.83 per cent. on the combined capital and surplus. The average annual net earnings for the past forty-two years were 9.07 per cent. on the average capital stock. During the year 99 national banking associations were closed voluntarily; of these 46 were absorbed by or consolidated with other banks; 22 reorganized as State institutions and 10 as new national banks; 19 were closed to discontinue business. Three national banks were placed in the hands of receivers, but of these only two were classed as failed banks. Since 1865 the affairs of 466 national banks have liquidated, an average of 76.2 per cent. being paid on the claims of creditors.

SAVINGS DEPARTMENTS. Considerable attention has been given during the past few years to the development of savings bank activities by national banks. This has in large part taken the form of an agitation favoring the organization by such banks of savings departments, the deposits of which may be loaned in part on real estate. National banks at present are not permitted to make such loans, though they are permitted to receive savings deposits. On September 1 there were 3039 national banks with savings deposits aggregating \$659,501,000, or 12 per cent. of all deposits. During the year the comptroller sent a questionnaire to the national banks on the subject of savings departments. Eighty-one per cent. of the banks favored an amendment to the banking law permitting national banks to loan a part of their deposits on real estate, most of them believing that as much as 25 per cent. of all deposits, savings, and demand, could be thus invested safely. Sixty-eight per cent. favored an amendment specifically authorizing national banks to establish savings departments. Fifty-nine per cent. favored the restriction of such savings department loans on real estate to about 40 per cent., while 30 per cent. favored no restriction. Thirty-three per cent. of the banks favored the segregation of savings deposits and the restriction of their investment as provided by the mutual savings bank laws of certain States, while 54 per cent. did not favor this restriction.

NATIONAL BANKS AND TRUST COMPANIES. Just as there has been agitation to allow national banks to do a savings bank business so there has been agitation to permit them to do trust company business. In July Attorney-General Wickersham rendered a decision holding that a trust company or other State bank and a national bank could not be controlled jointly by the

same set of stockholders. This was his interpretation of the national banking act. This decision was made at the request of the Secretary of the Treasury for an interpretation on that point. The secretary was seeking guidance for action in view of a published account of steps being taken by the National City Bank of New York to organize the National City Company as a holding corporation for a number of national and State banks. Investigation was then instituted by the comptroller, who found that in some 300 cases State banks or trust companies were controlled jointly with national banks. It was found also that such control had been recognized by the comptroller for about twelve years, during which time many such cases had been called to the attention of that office. The comptroller had taken the position that such affiliation rendered less likely violations of the national banking act, since national banks could turn over to the associated trust company or State bank business it was not allowed to handle. The Secretary of the Treasury in August prepared an opinion adverse to that of the Department of Justice. Both opinions were then transmitted to the President for final decision, which had not been given at the close of the year. It was evident that if the Attorney-General's view should prevail either considerable banking reorganization, or a modification of the national banking law, would be necessary. Without such affiliation, the national banks would not be able successfully to cope with the competition of State banks and trust companies in certain lines of business. The original form of the Aldrich plan provided for the organization of a special kind of national banks to do a trust company business; this was not incorporated, however, in the revised plan. In a public address on the Aldrich plan in November Secretary MacVeagh declared that if national banks could not be authorized to do a trust business, owing to laws forbidding such business to be done in a State without a State charter, then he favored giving national banks the right to organize and control State banks and trust companies.

POLICIES OF THE COMPTROLLER. The present Comptroller of the Currency, Lawrence O. Murray, has sought in various ways to raise the tone of banking methods and better the manner and method of bank examinations. Among other notices sent out during 1911 was one informing bankers and bank examiners that those banks having directors who do not attend strictly to the bank's affairs would be classed as "weak" and subjected to extra and rigid examinations. He also sent to examiners on November 10 a letter containing the laws of the various States and the judicial opinion of the Supreme Court of the United States with reference to the overdraft. He also began a more rigid examination of applications for bank charters. He took the position that applicants must first show the real need for a bank in the community affected. On the basis of a detailed letter of instructions to bank examiners an unusual number of applications were refused during the year. The number of charters granted during the first seven months was 146, as compared with 200 during the same time in 1910 and 230 in 1908. Among the new conditions imposed was the assessment of the cost of local examination preliminary to the grant of a charter upon the applicants therefor. Another

matter to which the comptroller has been giving special attention is the unreasonable delay by some banks in making remittances for collection. He has also encouraged the formation of national currency associations under the law of 1908. During 1911 associations were formed in Alabama and Colorado, making the total of such associations seventeen, including 284 banks representing nearly 30 per cent. of the capital of all national banks.

NATIONAL COMMITTEE ON PRISON LABOR. See **PENOLOGY**.

NATIONAL DAIRY SHOW. See **DAIRY-ING**.

NATIONAL EMPLOYMENT EXCHANGE. See **UNEMPLOYMENT**.

NATIONAL FORESTS. See **FORESTRY**.

NATIONAL FOREST SERVICE. See **FORESTRY**.

NATIONAL INSURANCE. See **GREAT BRITAIN, History,** and **WORKINGMEN'S INSURANCE**.

NATIONAL PEACE CONFERENCE. See **ARBITRATION**.

NATIONAL RESERVE ASSOCIATION. See **BANKS AND BANKING**.

NATRAMBLYGONITE. See **MINERALOGY**.

NATURAL HISTORY, AMERICAN MUSEUM OF. The chief aim of the administration of the museum during 1911 was to enhance the educational influence of the exhibition halls through a rearrangement of the collections. Through these efforts the attendance at the museum has increased within the year by 100,000 and the attendance at lectures rose to nearly 90,000. The number of pupils studying the circulating sections of the museum increased by over 300,000, reaching a total of 1,253,435. During the year 349 new members were enrolled, the total membership of the museum being at the end of the year 2856. In May the board of trustees recommended to the board of estimate and apportionment of the city that the southern half of the museum surrounding the two south courts be completed in 1919 in time to celebrate the fiftieth anniversary of the founding of the museum, which occurs in that year. The sum of \$200,000 was appropriated on July 17 for the excavation and foundation of the new southeast wing and court building. There were several important changes in the organization of the staff of the museum during the year. Prof. Hermon C. Bumpus resigned to accept a post in the University of Wisconsin. In May Dr. Frederick A. Lucas, curator-in-chief of the Brooklyn Institute Museum, was chosen director of the museum. There were important acquisitions in all departments of the museum during the year. The only notable gift received was one of \$25,070 from the estate of Charles E. Tilford. The total endowment of the museum at the close of 1911 was \$2,364,750.

NAVAL PROGRESS. The improvement and changes in the general field of naval affairs during the year 1911 are here grouped under the following main heads, and treated by countries: *Naval Aeronautics, Armor, Guns and Gunnery, Aerial Guns, Projectiles, Torpedoes, Powder, Submarines, and Propulsion of Naval Vessels.* The changes and improvements in **BATTLESHIPS** in particular are discussed under that title.

NAVAL AERONAUTICS

GREAT BRITAIN. In England the war office has undertaken the aeroplane branch of aero-

nautics; and the admiralty is experimenting with dirigibles. Four Valkyrie monoplanes have been presented to the government. None of the naval officers being instructed in aeroplanes has had any practice in map-drawing from balloons, but two of the officers employed with airships have had this experience. The naval airship was launched at Barrow on May 22; 512 feet long; beam (over her flat sides), 48 feet; lifting power, 21 tons; propelled by two eight-cylinder motor engines; designed to float on water or fly in the air.

FRANCE. Experiments with wireless telegraphy from aeroplanes have been carried out at Buc, in France, by M. Maurice Farman, using an apparatus of the Ancel type, with a four-inch spark coil supplied by four storage battery cells. The total weight of the wireless outfit was 45 pounds. Signals were sent a distance of eight miles. New experiments are being made to increase the range, using an eight-inch spark and a 300-foot aerial. In order to make reconnoitring flights at night, M. Farman experimented at Buc with an aeroplane fitted with two electric searchlights, one on each side of the pilot's seat. The current is provided by a dynamo using the power of the motor. A battery of accumulators is carried on the biplane, so that the light will not fail if the dynamo does not work. The searchlight throws rays downward 400 meters, so that, when flying at a height of 150 meters, everything below the aviator can be seen distinctly. A muffler for the motor, reducing the noise of the engine to a minimum, is so efficient that the biplane cannot be heard when flying above 100 meters. With the muffler in use, the pilot and the observer can converse freely without the use of special speaking tubes. France will soon lead the world in the efficiency and number of both airships and aeroplanes; it was claimed that on January 1, 1912, she would have 120 monoplanes and 80 biplanes. Sixteen large dirigibles were ordered in 1910; they have against them their great cost (\$125,000, plus \$50,000 for shed, and \$25,000 for annual upkeep), their relatively low speed (55 kilometers), and their inability to make headway against moderate winds. The *Adjutant Réau*, for instance, displacing nearly 9000 cubic meters, has remained over 21 hours in the air in making the 900 kilometers of the Paris-Verdun-Nancy-Paris flight. She carries over three tons weight in men (crew of 12 men), fuel, and explosives, besides wireless appliances. She can rise to 2000 meters, and cruise by night; and can, therefore, accomplish long-distance reconnoitring, and also inflict considerable damage on an enemy. Six similar airships are now ready. Though built for the war office, they would be of service to the navy.

As a result of experiments at Cherbourg, it is believed that an aeroplane can discover a submarine from a height of over 3000 feet, whereas the periscope of the submarine does not reflect the image of the aeroplane after more than half that height. But it will never be easy for the most practiced air pilot to pick up a submarine at sea. For scouting, a slow machine, making about 45 miles an hour, is deemed best. An extensive programme of experiments will be held, including the search for submarines at different depths in different conditions of the weather; the search for floating and fixed mines; combined action of aeroplanes, cruisers, and tor-

pedo boats; and torpedo firing from the aeroplane.

UNITED STATES. The United States navy now has an aviation school at Annapolis, with winter quarters at San Diego, Cal. The Curtiss and Burgess-Wright hydro-aeroplanes have been frequently tested. On February 17, 1911, Mr. Glenn Curtiss flew from North Island to the U. S. S. *Pennsylvania*, lying in the vicinity of San Diego, Cal. He landed in the water alongside. His aeroplane was hoisted aboard; and later was hoisted out, when he quickly rose from the water, and flew back to North Island. He had merely applied the required floating power to one of his old standard machines, by attaching extemporized hydroplanes, with a view to studying the attachments necessary to convert his machine into an effective hydro-aeroplane, capable of alighting on and starting from either land or water. The Curtiss hydro-aeroplane now in use is equipped with the dual control, which allows for the shifting of the steering wheel to either man while in the air, without any effect on the machine. Tests were made in November with a Burgess-Wright hydro-aeroplane. The purpose was to rise above the water from a station, making a flight to and alongside a ship, hoist the machine aboard, put to sea, and launch the hydro-aeroplane again with the use of a crane, and then make a flight. The aviator, Lieut. John Rodgers, United States navy, stated that his experiments convinced him that it was impracticable to launch an aeroplane from a battleship by means of a crane; and that the flight must be made directly from the deck of a vessel, either by the use of a monorail or some other contrivance. On October 11 Lieutenants Ellyson and Tower, United States navy, started at the aviation station, Annapolis, Md., and landed on the beach at Smith's Point, Va., 65 miles south of Annapolis, an hour and a half later. The time to their destination, Buckroe Beach, Va., a distance of 145 miles, was 147 minutes. When near Buckroe Beach "the engine was stopped and the big hydro-aeroplane was allowed to settle in the water" and then "the gear was changed to the propeller shaft and the machine was run ashore." Mr. Glenn H. Curtiss is building a flying lifeboat, to carry 12 men, and to be propelled by a motor of 30 horsepower. Lieut. John Rodgers has devised a life preserver for the use of pilots of hydro-aeroplanes. It is similar to a baseball player's breast protector, and attached in the same way. The straps which go around the neck and waist to keep the life preserver on are rubber tubes, to be inflated with the preserver. See **AERONAUTICS**.

ARMOR

UNITED STATES. In the United States no marked improvement is noted in thick armor. Increase in the severity of the tests has not been warranted. There has been a steady improvement in the quality of thin plates made of special treatment steel. In order to obtain armor plate of greater resistance, plate both hard and tough, demanded by the increasing power of rifled guns, compound armor was introduced, in which a face of hard steel was welded upon a backing of softer metal of great toughness, but it was found impossible to make a satisfactory weld. At the proving grounds, the hard face would split up and break away

from the backing. Then came Harvey's invention; in which the plate was made homogeneous throughout its thickness and the necessary hardness obtained by carburization of the front face.

GERMANY. Krupp improved upon Harvey's process by using gas in place of solid carbonaceous material. But the face-hardening could only be made to reach a certain depth; so that continued improvements both in the energy of the projectile and its ability to remain intact while penetrating the hard face again gave superiority to the gun.

GREAT BRITAIN. In England recently a new system of face-hardening, named after its inventor, Simpson, has been developed. He has adopted the Cammel process, but makes a plate with a perfect weld. It is claimed that this result is obtained by interposing a thin plate of copper between the two plates before welding them together. In the course of some experiments Simpson found that copper and steel could be made to form a molecular mixture or solid solution of the two metals. Later he found that, if two plates of steel with a sheet of copper between them were placed in a mixture of carbon, brown sugar, and water of the consistency of compressed snow, and the whole mass heated to 2500° Fahrenheit, the copper melted away into the steel, and not only formed a perfect weld, but increased the tenacity of the steel. The copper seam is so completely soluble in the steel that the weld, in the ordinary meaning of the term, has disappeared, there being absolute molecular continuity. The thickness of the hard face of armor can therefore be increased at will. It is claimed that by this process the resistance of a given weight of armor has been raised from 20 to 25 per cent. The British dreadnought *Thunderer*, launched February 1, 1911, 22,880 tons, will carry twelve inches of Simpson armor.

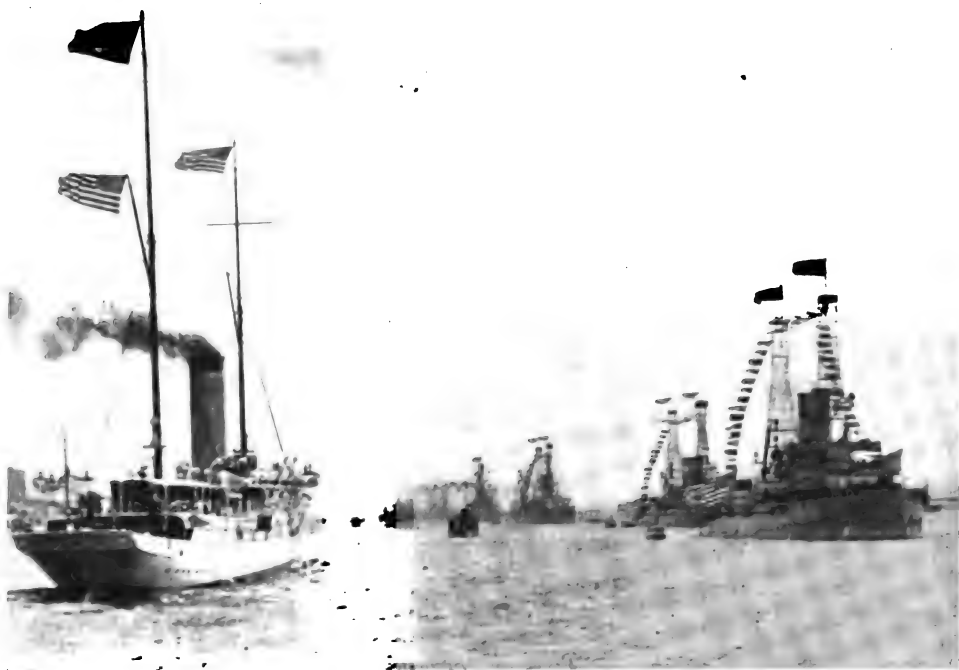
JAPAN. Armor plate for Japanese vessels built in Japan is supplied from the Kure navy yard, where a plant was started in 1902. The plates are made by a special process invented by Japanese engineers. The *Tsukuba* is armored with Japanese plates; and the output is now equal to all requirements.

GUNS AND GUNNERY

GREAT BRITAIN. Great Britain has abandoned the 12-inch guns for 13.5-inch, 45 calibre gun in the main batteries of battleships and battle cruisers. The battleship *Orion* and the battle cruiser *Lion*, armed with the 13.5-inch gun, have been completed. The 13.5-inch gun is nine tons heavier than the 12-inch of 50 calibre. The weights of the shell are 1250 pounds and 850 pounds, respectively; muzzle energies 70,000 and 48,000 foot tons. There is practically no diminution in the danger space.

UNITED STATES. All future United States battleships will carry the new 14-inch gun, with the 5-inch gun for torpedo defense.

ITALY. *Le Yacht* gives the following characteristics of the latest Italian 12-inch gun: Length, 46 calibre; weight of projectile, 895 pounds; muzzle velocity, 2825 foot seconds; elevation for 10,000 meters range, 6° 30'; angle of fall for same range, 8° 40'; remaining velocity, 1490 foot seconds; penetration of Krupp armor at 10,000 meters, 11.1 inches.



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REVIEWING THE FLEET FROM THE U. S. S. "MAYFLOWER" AS THE
SHIPS PASS OUT TO SEA



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PRESIDENT TAFT, SECRETARY OF THE NAVY MEYER, AND STAFF BOARDING THE
U. S. S. BATTLESHIP "CONNECTICUT"

THE NAVAL REVIEW OF 1911

AERIAL GUNS

UNITED STATES. A new 3-inch aeroplane gun for the United States navy is being built at the Washington navy yard. A 6-pdr. gun has been designed to fire an explosive shell about 20 times a minute, using a time fuse. Target practice is being held with one-pounders against aerial targets.

GERMANY. The Ehrhardt Ordnance Works of Germany has offered for sale aeroplane guns firing high explosive ammunition, using time fuses. When the target aeroplanes come within range the guns fire time-fuse shell exploding several seconds apart, releasing gases of extremely high temperature which set the aircraft on fire.

PROJECTILES

UNITED STATES. In the United States the quality of the projectile is being slowly improved. High explosive bursting charges are now a necessity in modern armor-piercing shell. The soft cap is still used to enable the point of the shell to "bite" on impact. Experiments with the monitor *Puritan* did not demonstrate the value of shell exploding on impact.

TORPEDOES

UNITED STATES. The torpedo of to-day is effective at 8000 yards; and a range of 10,000 yards at 27 knots is confidently expected in the near future. The United States is now building two types of torpedoes which will fulfill these conditions.

GERMANY. The largest torpedo now used in the German navy has a diameter of 19½ inches, and a maximum range of 4200 yards at 21 knots; and compares very favorably with the British 21-inch model. The new German torpedo will have a diameter of about 22 inches, with a charge weighing about 300 pounds; the maximum range is given as over 5000 yards. The Krupps have taken out patents for a self-propelling torpedo to be fired from an aeroplane; and it can be used not only against objects on earth, but also against hostile aircraft.

POWDER

UNITED STATES. In the United States, by the introduction of a stabilizer, the life of smokeless powder has been increased to from twelve to fifteen years, and possibly longer. The stabilizer is also an efficient and automatic detector of irregularities in manufacture. The experimental firings of powder mixed with ozokorite and graphite have given no definite results in determining the reduction in erosion of guns.

FRANCE. On September 25, 1911, the French battleship *Liberté*, 14,868 tons displacement, was destroyed by fire and explosion in the harbor of Toulon, the vessel becoming a mass of twisted and entangled metal. This disaster resulted in 204 men killed or missing, 136 wounded, and 48 slightly injured. Official investigation proved that "spontaneous ignition of a charge in the forward starboard upper 7.6-inch magazine was the cause of the disaster," and that "the oldest 'B' powder to which the explosion can be attributed was aged but five years; and that, by deduction, powder of the 'B' type, five or more years old, can spontaneously ignite." "B" powder is composed of two kinds of nitro-cellulose, soluble and insoluble, of 11.60 and 13.23 per cent. nitration respectively. Amyl alcohol was, until recently, the solvent; but has been abandoned in favor of ethyl alcohol, with diphenylamine as a stabilizer.

PROPULSION OF NAVAL VESSELS

RECIPROCATING ENGINES VS. TURBINES. The decision of the United States Navy Department to abandon turbines for reciprocating engines in the new battleships *Texas* and *New York* has caused great surprise in the naval world. All the other naval powers have adopted the turbine. In his annual report to the Secretary of the Navy, the engineer-in-chief says:

"This decision was arrived at after an extensive investigation, including the comparative trials of the two types of machinery in the scout cruisers *Birmingham*, *Chester*, and *Salem*, and in the battleships *Delaware* and *North Dakota*, which render available more exact data on the subject than are available to any other government. It is found that the reciprocating engine is about 30 per cent. more economical at cruising speed than the turbine and has about the same economy at high speeds."

In the *Scientific American* of December 9, 1911, he writes, in substance, as follows: "The turbine is especially suited to high speeds. The reciprocating engine shows greater reliability than the turbine. The present problem is to provide a method of propulsion in which a high-speed turbine can be made to drive a slowly revolving propeller, thus conserving both turbine and propeller efficiencies. One method is to employ reduction gear machinery, as in the collier *Neptune* (19,300 tons). Reduction gearing as installed in the cargo steamer *Vespasian* (5400 tons) by the Parsons Company, has successfully completed a year's trial. In the naval collier *Jupiter* electric propulsion will be tried. One turbo-generator, maximum speed about 2000 revolutions a minute, delivers current with a

Calibre	Length in calibres	Length in feet	Weight in tons	Muzzle velocity, foot seconds	Weight of shell, pounds	Muzzle energy, foot tons	Extreme range, ship mounting, yards	Penetration in Krupp armor, inches
5	40	17	3.1	2,300	50	1,852	7,000	2.3 at 6,000 yards
5	51	22	5.0	3,150	50	3,439	12,000	3.0 at 6,000 yards
12	45	46	53.6	2,850	870	45,984	22,000	15.2 at 10,000 yards
12	50	51	55.1	2,900	870	51,644	24,000	15.6 at 10,000 yards
14	45	54	63.3	2,600	1,400	65,687	21,000	15.9 at 10,000 yards

potential of 2300 volts to induction motor, one on each propeller shaft. The power from the turbine will be transmitted to the propeller shafts electrically, with a speed reduction in the ratio of 18 to 1. The efficiency of transmission is expected to be about 91 per cent. The water rate for this installation is stated to range from 12.15 pounds per shaft horsepower at 14 knots to 15.55 pounds at 10 knots.

"The combination of a reciprocating engine working the steam from boiler pressure down to nearly atmospheric pressure and a turbine which works from the exhaust pressure of the reciprocating engine down to the vacuum is a particularly efficient one, its principal value being economy of coal consumption at full power in a medium-speed vessel.

"The remarkable development of heavy oil engines of the Diesel type in Europe will probably prevent previous methods of propulsion from enduring. Superior economy of the oil engine, with elimination of the steam boiler and condenser, will cause us to be patient with defects while it is being perfected. Oil supply is a great factor in which the United States is especially fortunate, producing two-thirds of the world's supply.

"All our new destroyers are oil burners. The advantages are: Reduction of personnel and of weight and space required for boilers; the elimination of coal and ash-handling gear; easier stowage and handling of oil; steam for full power can be as readily maintained as for low power; a vessel burning oil is capable of prolonged runs at full speed limited in length only by supply of fuel; no reduction of speed due to dirty fires or to difficulty in trimming coal from remote bunkers; no cinders; smoke can be controlled. With oil, an evaporation per pound of fuel greater than with coal in the ratio of 14 to 9, and per square foot of heating surface in about the ratio of 10 to 8 is obtained. Mechanical supply of fuel to boilers gives prompt and delicate control of the steam supply, permitting more sudden changes in speed than with coal—a tactical advantage." He questions whether the combined system of reciprocating engines and turbines, or geared turbines, or indeed any of the proposed methods for improving the efficiency of the turbine at low speeds are worth the extra complications involved.

COMBINATION SYSTEM. Sir Charles Parsons says that the combination system opens up many possibilities; but it has its limitations, and lack of elasticity prevents its application to certain classes of warships. He has no doubt as to the advantages of gearing from many points of view, particularly for the realization of high efficiency under all conditions. No extra space is required for the geared turbine; and it presents no disadvantage on the score of cost. He is not in favor of the floating cradle (Westinghouse type); it is sufficient if provision be made to allow end movement of the pinion shaft.

FIRST LORD'S STATEMENT. Extracts from the statement of the First Lord of the Admiralty: "All war vessels completed during the present year, and at present under construction, have been designed with water-tube boilers and turbine engines, the latter being either of the Parsons or Brown-Curtis type. The boilers of all armored vessels building are being fitted to burn oil in conjunction with coal,

the full power being obtainable in these vessels by the use of coal only. Satisfactory full power trials have been carried out in the second-class cruisers of the *Bristol* and *Blanche* type, the boilers of which vessels are designed to burn oil in conjunction with coal when obtaining full power. The torpedo-boat destroyers of this year's programme are designed to burn oil only; and improvements have been made in the oil-burning fittings."

UNITED STATES. The two new American battleships *Nevada* and *Oklahoma* will be oil burners and will carry no coal. Tests made on the *North Dakota*, equipped for either oil or coal, are largely responsible for this decision.

DIESEL OIL ENGINE. There are over 250 vessels either fitted or to be fitted with Diesel plants. Submarine torpedo boats form a large part of this number. The Diesel engine is now almost universally adopted for this type of vessel, except in Great Britain and the United States. The number of Diesel submarines is about 150 of from 300 to 5000-horsepower. In the last two years the radius of action and the power of these boats has been so much increased that they are no longer merely defensive boats, but are extremely dangerous high-sea weapons. A certain number of gunboats and very small cruisers, especially for Russia, have been built.

This year began the era of the large cargo boats, such as the 9000-ton boat at Hamburg. There is already one battleship with Diesel engines in existence, the German battleship *Ersatz Odin*; the oil engines will supply one-third of the power for the ship, driving the middle screw; while the others will be driven by the existing type of engine. France is now building submarines having two oil engines of 2500-horsepower each. Italy is building a destroyer equipped entirely with oil engines. England has ordered a destroyer having oil engines for cruising purposes and steam turbines for high speed. Austria has a cruiser with two 900-horsepower two-cycle engines. Generally speaking, as extreme limits, the oil consumption may be said to vary from 0.4 to 0.6 pounds per horsepower hour. Therefore, for a given weight of fuel, a ship propelled by oil engines would have from four to six times the radius of action of a similar ship propelled by steam. See INTERNAL-COMBUSTION ENGINES.

SUBMARINES

FRANCE, GREAT BRITAIN. The French submarine *Mariotte*, the largest in the world, with a displacement of 1100 tons, length 214 feet, was launched at Cherbourg on February 2, 1911. The displacement of the "D" class of the British navy is 804 tons. "E" class (six boats), to be completed in 1912-13, will displace 800 tons; length 176 feet; surface speed 15 knots.

UNITED STATES, RUSSIA, ITALY. The latest United States submarines ordered will displace about 525 tons; the new Russian boats 500 tons; but Italy, where some very successful boats have been built in recent years, prefers small boats of 225 tons displacement. The United States boat *Seal*, launched February 8, 1911, has the following characteristics: Length over all, 161 feet; extreme beam, 13 feet; submerged displacement about 525 tons; armament, 6 torpedo tubes, with stowage for ten torpedoes; contract surface speed, 14 knots, but a speed of 16 is expected; contract submerged speed, 9½

knots; cruising radius at economical speed on surface, over 2500 knots. She is designed for long cruises in rough weather without a tender.

SALVAGE LIGHTER

GREAT BRITAIN. The British salvage lighter for submarines is fitted with a salvage plant capable of lifting a submarine of the "C" class; length, 115 feet; beam, 31 feet; displacement at load draft, 790 tons. She is fitted with a 15-inch centrifugal pump; and has four trunkways fitted with capstans for lifting a weight of 300 tons. She also has an air pump for working pneumatic tools; and an electric light plant. Cost \$26,846.

NAVY LEAGUE, GERMAN. See GERMANY, *History*.

NAZRO, ARTHUR PHILLIPS. A rear-admiral, retired, of the United States navy, died February 15, 1911. He was born in Milwaukee in 1850 and in 1865 entered the United States Naval Academy. After his graduation he served as a midshipman on board the *Sabine* under Franklin, until he received his promotion as ensign. He was promoted to be lieutenant in 1874 and cruised on board the *Hartford*, in the North Atlantic Squadron. After this service he became recorder of the Board of Inspection at Washington, and after making a study of torpedoes in the War College at Newport, was placed on ordnance duty in the Washington navy yard. He filled various assignments on sea and shore until at the time of Aguinaldo's insurrection in the Philippines he was placed in command of the gunboat *Manila* as commander. His last active duty was in command of the naval station at Cavite. He was retired for disability in 1910.

NEBRASKA. POPULATION. The Thirteenth Census, taken in 1910, showed the population of the State in that year as 1,192,214, compared with 1,066,300 in 1900, an increase of 125,914, or 11.8 per cent. in the decade. The principal cities, with their population in 1910 and 1900, are as follows (the figures in parentheses are for 1900): Omaha, 124,096; (102,555); South Omaha, 26,259 (26,001); Lincoln, 43,973 (40,169); Grand Island, 10,326 (7554).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 129,678, compared with 121,525 in 1900. The land in farms was 38,622,021 acres, compared with 29,911,779 acres in 1900. The improved land in farms was 24,382,577, compared with 18,432,595 in 1900. The average number of acres per farm was 297.8, compared with 246.1 in 1900. The value of all farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees was \$2,079,817,647, compared with \$747,950,057 in 1900, an increase of 178.1 per cent. in the decade. The average value of property per farm was \$16,038, compared with \$6155 in 1900. The average value of land per acre was \$41.80, compared with \$16.27 in 1900. Of the total number of farms, 80,237 were operated by owners and managers and 49,441 were operated by tenants. Of the farms operated by persons owning all or part of the land, those free from mortgage numbered 47,435, and those under mortgage 30,839. The native white farmers numbered 93,509; foreign-born white, 35,707; negro and other non-white, 49,462. The value of the various kinds of domestic animals, poultry,

and bees in 1910 was \$222,222,004, compared with \$145,349,587 in 1900. The cattle numbered 2,932,350, valued at \$73,074,067; horses and colts, 1,008,378, valued at \$102,804,907; mules, 83,405, valued at \$10,374,076; swine, 3,435,734, valued at \$29,649,482; sheep, 293,500, valued at \$1,480,948. The acreage, production, and value of the principal crops in the State in 1910 and 1911 will be found in the following table:

		Acreage	Prod., bu.	Value
Corn	1911	7,425,000	155,925,000	\$85,759,000
	1910	7,425,000	191,565,000	68,963,000
Wheat	1911	3,098,000	41,574,000	36,169,000
	1910	2,394,000	38,760,000	31,008,000
Oats	1911	2,500,000	34,750,000	14,942,000
	1910	2,532,000	70,896,000	19,851,000
Rye	1911	52,000	676,000	507,000
	1910	59,000	944,000	666,000
Potatoes ..	1911	116,000	6,032,000	5,649,000
	1910	115,000	6,900,000	5,796,000
Hay	1911	1,350,000	1,148,000	11,186,000
	1910	1,500,000	1,500,000	13,350,000
a Tons.				

MANUFACTURES. The Thirteenth Census included statistics relating to manufactures of the State. The results are given in the table below. These figures are for the calendar year 1909. While Nebraska is not preëminently a manufacturing State, its manufacturing interests have developed considerably in the last five years, as will be seen by this table. The industries in which the largest capital is involved and whose products have the largest value are those connected with slaughtering and meat packing. Of these there were in 1909 eighteen establishments, employing 6015 wage-earners and manufacturing products valued at \$92,305,000. Next in order of value are the industries connected with flour-mill and grist-mill products. These establishments numbered 249 and employed 839 wage-earners. They produced products valued at \$17,836,000. The products of butter, cheese, and condensed milk factories were valued at \$7,681,000; printing and publishing, \$6,667,000; malt liquors, \$3,335,000; bread and other bakery products, \$3,014,000; foundry and machine shop products, \$2,930,000; lumber and timber products, \$2,021,000; other industries whose product was valued at \$1,000,000 or over and less than \$2,000,000 were leather goods, clothing, illuminating and heating gas, paint and varnish, artificial stone, confectionery, brick and tile, and tobacco manufactures. The total number of persons engaged in the manufacturing industries of the State in 1910 was 31,966, of which 27,577 were male and 4409 female. The largest number of persons engaged in manufactures related to slaughtering and meat packing. For the great majority of the wage-earners employed in the manufacturing industries in the State, the prevailing hours of labor ranged from 54 to 60 a week, or from 9 to 10 a day. The following table gives the summary of the results of the census for the calendar years 1909-1904:

	Number or amount	
	1909	1904
Number of establishments	2,500	1,819
Persons engaged in manufactures	31,966	25,356
Proprietors and firm members	2,522	1,904
Salaried employees.....	5,108	3,192
Wage earners (average number)	24,336	20,260

	Number or amount.	
	1909	1904
Primary horsepower.....	64,466	46,372
Capital	\$ 99,901,000	\$ 80,235,000
Expenses	183,587,000	146,639,000
Services	19,439,000	14,097,000
Salaries	5,491,000	3,075,000
Wages	13,948,000	11,022,000
Materials	151,081,000	124,052,000
Miscellaneous	13,067,000	8,490,000
Value of products.....	199,019,000	154,918,000
Value added by manufac- ture (value of products less cost of materials).	47,938,000	30,866,000

EDUCATION. The total enrollment in the public schools of the State in the year ended July 11, 1910, was 278,936. The average daily attendance was 192,454. The total number of graduate scholars in 1911-12 was 543. There were 4489 teachers employed in the schools of the State. The total expenditures for education in 1910 amounted to \$7,454,215. The average monthly salary of teachers was \$55.24.

FINANCE. The biennial report of the State treasurer for the period 1908-10 showed a balance in the treasury December 1, 1908, of \$384,437. The receipts from December 1, 1907, to November 30, 1910, inclusive, amounted to \$10,960,919, and the disbursements to \$10,744,066, leaving a balance at the end of the fiscal year 1910 of \$601,290. The trust funds of the State, including school funds, college, and university funds, amounted to \$8,863,890.

POLITICS AND GOVERNMENT

The legislature met in 1911, but no statutes of general interest were passed. The most important transaction from a national standpoint was the election on November 17 of Gilbert M. Hitchcock, Democrat, as United States senator to succeed Elmer J. Burkett, Republican. Mr. Hitchcock was nominated in the primaries of November, 1910, in which the Democrats changed the majority in the legislature from a Republican to a Democratic, thus insuring the election of a Democratic senator. On January 17 the legislature took a formal vote, and of 133 votes cast 117 were given Mr. Hitchcock. Of the votes which elected him forty-five were cast by Republicans, some of whom had signed a pledge previous to the primary election to abide by the result of the popular vote for senatorial candidate. An interesting fact in connection with the election of Senator Hitchcock was the fact that just forty years previous to the day on which he was elected his father, Phineas W. Hitchcock, was elected senator from the then new State of Nebraska as a Republican by a combined vote of Democratic and Republican voters.

On February 15 the Senate passed by a unanimous vote a resolution instructing the Nebraska delegation in the national Senate and House to support President Taft's Canadian reciprocity agreement. The House had previously voted twice to lay on the table a resolution against reciprocity. On February 8 county option in the State was defeated in the Senate by a vote of 17 to 16. This measure in 1910 had the strenuous support of William J. Bryan. He did not, however, actually support the bill during its consideration in the legislature.

There were no elections for higher State officers in 1911. The elections were for candidates for the Supreme Court bench and for a representative in Congress from the Third Congressional District. On July 25 the Democrats held a State convention for the nomination of these officials.

The convention was controlled by a combination of leaders whose chief effort was to bring about harmony between the conflicting elements in the party. The convention was divided into representatives of William J. Bryan and those who opposed him. Mr. Bryan's representatives agreed to the elimination of his name from the resolution adopted by the convention and it was agreed that no condemnation of any other party leader be included. This was accepted by the opposition element and formed the basis of the peace agreement. The platform was, in the main, an indorsement of the Democratic national platform of 1908 and included a condemnation of the Republican administration. It also indorsed the constitutional amendment providing for the initiative and referendum, and the early passage of a service pension bill was commended to the Democratic representatives of the State in Congress. The Republican convention met on July 25. It was a purely formal session and occupied scarcely three hours. The convention selected no candidates, but was called to construct a platform and instruct campaign officials. The advocacy of Senator La Follette as a presidential candidate gained considerable strength in the convention. This was so apparent that the supporters of President Taft did not introduce a resolution indorsing the President for renomination. On the other hand, the delegates favorable to Senator La Follette were not numerous enough to risk asking the indorsement of their candidate. The elections held on November 7 resulted in a majority of about 10,000 votes for the Republican candidates for the Supreme Court. Daniel V. Stephens, a Democrat, was elected from the Third District, to succeed the late Representative James Latta. Mr. Stephens was given a plurality of about 4000 votes over his Republican opponent.

On December 19 a mass convention of 250 Republicans met at Lincoln in response to a call for supporters of President Taft to organize and pledge the sixteen Nebraska delegates to the national convention for President Taft's renomination. A State organization was formed and local clubs will be organized. Resolutions adopted declared that the members of the convention are heartily, earnestly, and sincerely in favor of the renomination and reelection of President Taft.

On September 2 the voters of Omaha, at a special election, voted for the commission form of government. This election was held in accordance with the law enacted by the legislature providing that cities of the metropolitan class and other cities may vote on the question of adopting the commission form of government. The votes for the commission plan were about 3 to 1. The Omaha plan is similar in some respects to the Des Moines plan, but differs from it in important details. At the regular spring election in April, 1912, people will choose seven commissioners from fourteen men to be nominated at a primary to be held one month before the election. Candidates for nomination and election will have no party designation. The seven commissioners elected will choose from their own number a mayor. The mayor will be paid a salary of \$4500 and each of the six commissioners \$4000 a year. The commissioners will appoint all other city officials, levy taxes, and conduct all the other business of the city. The law under which they will be

elected provides for the initiative, referendum, and recall. If 25 per cent. of the voters who voted at the last election petition for the recall of a commissioner he will be suspended until a special election can be held, when, if he shall receive a majority vote, he will continue in office. Several smaller cities in Nebraska have voted for this form of government.

STATE OFFICERS. Governor, Chester H. Aldrich, Republican; Lieutenant-Governor, M. R. Hopewell; Secretary of State, Addison Wait; Treasurer, W. A. George; Auditor, Silas A. Barton; Attorney-General, Grant G. Martin; Superintendent of Education, J. C. Crabtree; Secretary of Agriculture, S. R. Mellor; Commissioner of Public Lands, E. C. Cowels—all Republicans.

SUPREME COURT. Chief Justice, Manoah B. Reese; Justices, Charles B. Letton, Jesse L. Root, Jacob Fawcett, William B. Rose, John B. Barnes, and Samuel H. Sedgwick; Clerk, H. C. Lindsay—all Republicans.

STATE LEGISLATURE, 1911. Senate, Republicans, 14; Democrats, 19; Democratic majority, 5. House, Republicans, 46; Democrats, 54; Democratic majority, 8. Joint ballot, Republicans, 60; Democrats, 73; Democratic majority, 13.

NEBRASKA, UNIVERSITY OF. An institution of higher learning at Lincoln, Neb., founded in 1867. The number of students in all departments of the university in 1910-11 was 4624. The total instructional force, including professors, instructors, fellows, scholars, and assistants was 333. During the year Prof. James Le Rossignol was appointed head professor of political economy to succeed W. G. L. Taylor, resigned; J. H. Frandson was appointed head professor of dairying to succeed A. L. Haecker, resigned; J. D. Hoffmann was appointed head professor of mechanical engineering to succeed Charles R. Richards, resigned; and F. M. Hunter was appointed principal of the School of Agriculture to succeed A. E. Davisson, deceased. A loan fund was established for the encouragement of worthy students by the donations of Hon. John R. Webster of Omaha, W. G. Whitmore, Valley, Neb., and Hon. J. A. L. Waddell of Kansas City, Mo. The income for the year was \$655,000. This does not include special appropriations for new buildings, repairs, and State enterprises, and bureaus under the control of the board of regents of the university. The library contains about 100,000 volumes. The chancellor is Samuel Avery, Ph. D.

NECROLOGY. The following list contains the names of persons who died during 1911. An asterisk prefixed to a name indicates that there is a separate biography in proper alphabetical order, in the body of the book:

- * Abbey, Edwin Austin. American artist.
- * Abbey, Henry. American poet.
- Abdul Ahad, Sayid. Ameer of Bokhara. Died January 4; born 1859.
- * Abraham, Abraham. American merchant. Died June 28; born 1843.
- * Adams, George B. American jurist.
- * Adler, Hermann. Jewish rabbi.
- Agilus, Ambrose. Roman Catholic prelate, papal delegate to the Philippines. Died December 13.
- * Aiken, Charles Frederick. American editor.
- * Aird, Sir John. English engineer.
- * Albro, Addis. American clergyman.
- * Alexander, William. Irish prelate.
- * Allen, Amos L. American public official.
- * Allen, Ethan. American lawyer.
- Amory, Arthur. American merchant and capitalist. Died August 10; born 1841.
- * Andrade, Cipriano. American rear-admiral.

- * Angell, Henry Clay. American ophthalmologist.
- Anton, Peter. Scotch minister and historian. Died December.
- * Arabi Pasha. Egyptian revolutionist.
- Ashley, Edward F. American bacteriologist. Died March; born 1876.
- * Ashmore, Sidney G. American educator.
- Aston, William George. English writer and philologist. Died April; born 1841.
- Atterbury, William Wallace. American clergyman. Died August 6; born 1823.
- Attfield, John. English chemist. Died March; born 1836.
- Aumonier, James. English landscape painter. Died October 4; born 1832.
- Avery, Mary Ogden. American philanthropist. Died April 29; born 1825.
- Bachman, Reuben K. Former member of Congress from Pennsylvania. Died September 19; born 1834.
- Baedecker, Karl. German guidebook publisher. Died May 12.
- * Bailey, Mark. American elocutionist.
- * Balrd, Julian William. American chemist.
- * Baker, George Hall. American librarian.
- Baker, Martha S. American miniature painter. Died December 23.
- * Baker, Sir Richard Chaffey. Australian public official.
- Balcells, Mariam. American clergyman and educator. Died October 7.
- * Baldwin, Caleb Cook. American missionary.
- * Ball, Thomas. American sculptor.
- * Banffy, Desiderius, Baron. Hungarian public official.
- * Banks, David. American publisher.
- Barnes, Henry Burr. American publisher. Died January; born 1846.
- * Barr, Charles. Scotch yachting expert.
- Bartlett, Frederick E. American painter. Died June 8; born 1856.
- * Bascom, John. American educator.
- * Batchelor, Egerton Lee. Australian public official.
- Beach, Joseph P. American editor. Died January 8; born 1829.
- * Beck, Carl. American surgeon.
- Beddoe, John. English anthropologist. Died July 19; born 1826.
- Beddome, Col. Richard Henry. English botanist. Died February; born 1848.
- * Begas, Reinhold. German sculptor.
- * Bell, Charles Frederic Moberly. English journalist.
- * Bell, Joseph. Scotch surgeon.
- * Bellew, Harold Kyrle Money. English actor.
- * Benedict, Robert Dewey. American lawyer.
- * Bennett, Madeline (Schiller). German-American pianist.
- * Benton, Joel. American poet.
- * Berteaux, Henri Maurice. French cabinet officer.
- * Bigelow, John. American author.
- Binet René. French architect. Died August; born 1867.
- * Bird, John T. American jurist.
- Blane, Sir Seymour. British major-general. Died June 26; born 1833.
- * Bliss, Cornelius Newton. American merchant and public official.
- * Bloxam, William Dunnington. American public official.
- * Bogert, Edward Strong. American rear-admiral.
- * Boggs, William Robertson. American soldier.
- Bonner, Frederic. American editor. Died January 3; born 1857.
- Bornemann, Frederick. American opera singer. Died December 27; born 1833.
- Bouche, Louis Alexandre. French artist. Died March; born 1848.
- * Bougtillier-Chavigny, Charles Marie Claude, Marquis de. French lecturer.
- Bourgeois, Urbain. French artist. Died February; born 1843.
- * Bowditch, Henry Pickering. American physiologist.
- * Boynton, George B. American soldier.
- * Brackett, Anna Callender. American educator.
- Brackett, James W. American public official and editor. Died June 24; born 1865.
- * Bradford, Amory Howe. American clergyman.
- * Bradford, Gamaliel. American publicist and banker.
- * Brady, Francis Xavier. American Roman Catholic clergyman.
- Brainerd, James T. American silk manufacturer. Died July 11; born 1826.

- * Brinckerhoff, Walter Remsen. American pathologist.
- * Brinckerhoff, Roeliff. American banker.
- * Broadhurst, Henry. English labor leader.
- Bruce, Alexander. Scotch nerve specialist. Died June.
- Bruce, Elizabeth N. American pastor and philanthropist.
- Bruce, Leslie Coombs. American publisher and sportsman. Died August 2; born, 1849.
- * Bruff, Lawrence Laurensen. American soldier.
- Brun, Gen. Jean Jules. Former French minister of war. Died February 23; born, 1850.
- * Bryan, Nathan Philemon. United States senator.
- Buchanan, Thomas Ryburn. English official and member of Parliament. Died April 7; born, 1846.
- Buchanan, William. American tobacco manufacturer. Died November 14; born, 1843.
- Bulkley, Henry Wheeler. American engineer and inventor. Died November 7; born, 1841.
- * Bull, Charles Stedman. American physician.
- * Bullis, John Lapham. American soldier.
- * Bunting, Sir Percy William. English editor.
- Burke, Daniel Webster. American brigadier-general. Died May 30; born, 1841.
- * Butler, George Prentiss. American banker.
- * Cabell, William Lewis. American lawyer and soldier.
- * Cáceres, Ramón. President of the Republic of Santo Domingo.
- Cady, Sarah Louise. American educator. Died November 8; born, 1829.
- Cagniard, Emile. French painter. Died March; born, 1856.
- Camel, Théophile. French sculptor. Died February; born, 1862.
- * Camidge, Charles Edward. English bishop.
- Campbell, Sir Charles. English admiral. Died February 8; born, 1847.
- Campbell, Lady Colin. English writer and editor. Died November 8.
- Capron, Adin Ballou. Former member of Congress from Rhode Island. Died March 17; born, 1841.
- Carey, Henry Westonsrae. American financier and public official. Died April 28; born, 1850.
- Carey, Michael. American educator. Died December 20.
- Carlisle, George James Howard, ninth Earl of. English nobleman. Died April 15; born, 1843.
- * Carrère, John Mervin. American architect.
- Carroll, John F. American political writer. Died November 17; born, 1853.
- * Carroll, John Lee. American public official.
- * Carter, Thomas Henry. United States senator.
- Cavicchioni, Beniamino. Roman Catholic cardinal. Died April; born, 1836.
- * Cawdor, Frederick Archibald Vaughan Campbell, third Earl of. English nobleman and public official.
- * Chadborn, Charles L. American inventor.
- * Chaillé, Stanford Emerson. American physician.
- * Chamberlain, Abiram. American public official.
- * Chamberlain, Henry Richardson. American newspaper correspondent.
- * Chawner, William. English educator.
- * Chilton, Robert S. American public official.
- Chrystal, George. Scotch mathematician. Died November 3.
- Clark, George Chever. American merchant. Died January 11; born, 1843.
- * Clark, J. Scott. American educator.
- * Clarke, Albert. American soldier.
- * Clarke, Sir Caspar Purdon. English art director.
- * Clarke, Richard M. American lawyer.
- * Clotilde, Princess of Savoy. Died June 25; born, 1843.
- * Cockcroft, James. American publisher and editor.
- Coleman, Enrico. English artist. Died February 15; born, 1846.
- Colgan, Joseph. Roman Catholic archbishop of Madras. Died February; born, 1824.
- * Collingwood, Francis. American engineer.
- * Collins, Richard Henn. Baron. British jurist.
- Collins, William Edward. Anglican clergyman, Bishop of Gibraltar. Died, March; born, 1867.
- * Colman, Norman Jay. American agriculturist.
- Cooch Behar, Sir Nripendra Narayan, Maharajah of Indian prince. Died September 15; born, 1862..
- Correoso, Buenaventura. Public official of Panama. Died January 10; born, 1831.
- * Corson, Hiram. American critic.
- Costa, Joaquín. Spanish writer and politician. Died February.
- Courteney, Henry Reginald. British major-general. Died March; born, 1823.
- Covington, George. Former member of Congress from Maryland. Died April 6; born, 1839.
- Cranbrook, John Stewart Gathorne-Hardy, Earl of. English nobleman. Died July 19; born, 1839.
- Crimmins, Thomas Emmet. American contractor. Died September 8; born, 1851.
- * Critchfield, George W. American promoter and financier.
- * Crofts, Ernest. English artist.
- * Cromwell, Edward Payson. American clergyman and teacher.
- * Cronje, Piet Arnoldus. Boer soldier.
- Curtin, John J. American soldier. Died January 1; born, 1839.
- * Curtis, William Eleroy. American journalist.
- * Curson-Howe, Sir Assheton Gore. British admiral.
- * Damon, William Emerson. American naturalist.
- * Dandy, George Brown. American soldier.
- Danford, Henry B. American organist and instructor in music. Died September 12; born, 1839.
- Davenport, Ira Erastus. American spiritualist. Died July 8; born, 1838.
- * Davidson, George. American geodesist.
- Davis, Josephine Griffith. American physician. Died November 8; born, 1839.
- * Davis, Robert. American political leader.
- Davis, Thomas B. American financier, former member of Congress from West Virginia. Died November 26; born, 1828.
- De Forest, John H. American Congregational clergyman. Died May 8.
- Dennis, John. English writer. Died, February; born, 1835.
- * Densmore, Emmet. American physician and inventor.
- De Rialp, Frank. Teacher of singing. Died September; born, 1840.
- Dernburg, Friedrich. German writer. Died December; born, 1833.
- * Devins, John Bancroft. American clergyman and editor.
- Devonshire, Louise Fredericke Auguste, Duchess of. British peeress. Died July 15.
- * de Vyver, Augustine. Roman Catholic bishop.
- De Wet, Sir Jacobus Albertus. British South African official. Died March; born, 1840.
- * Dicey, Edward. English author.
- Dieuiafoy, Paul Georges. French physician. Died August 16; born, 1837.
- Dilke, Sir Charles Wentworth. Died January 26; born, 1843.
- Dimock, Henry F. American financier. Died April 10; born, 1842.
- Dix, Edwin A. American Author. Died Aug. 24; born, 1860.
- Dobson, John. American carpet manufacturer. Died June 28.
- Doll, Jacob. American piano manufacturer. Died November 13; born, 1848.
- * Dominguez, José Lopez. Spanish statesman.
- Doonan, James A. Roman Catholic clergyman and educator. Died April 12; born, 1842.
- Doran, Robert E. American alienist. Died September 24; born, 1870.
- * Drawbaugh, Daniel D. American inventor.
- * Dresser, Solomon Robert. American public official.
- * Dryden, John Fairchild. Former United States senator.
- Ducaruge, Léon. French artist. Died February; born, 1842.
- * Dudley, Edgar Swartout. American army officer.
- * Dudley, Irving Bedell. American diplomat.
- * Dudley, William Russell. American botanist.
- Du Moulin, John Philip. Canadian bishop of Niagara. Died March; born, 1836.
- Durand-Morlbeau, Henri. French journalist and educator. Died February; born, 1849.
- * Durham, Milton Jamison. American lawyer and public official.
- * Dwight, Thomas. American anatomist and educator.
- * Earle, Alice (Morse). American author.
- Eastman, Julia Arabella. American educator and writer. Died January 1; born, 1837.
- Eaton, John. Pioneer of the Pennsylvania oil field. Died September 16; born, 1840.

- Eccleston, James Houston. American Protestant Episcopal clergyman.
- Eddy, William H. American soldier. Died August 9; born, 1855.
- Edison, Jarvis Bonesteel. American engineer and inventor.
- Edwards, John Passmore. English editor.
- Egan, J. C. American physician, chief surgeon in charge of the Confederate military hospitals. Died December 15; born, 1842.
- Eggleston, George Cary. American journalist and writer.
- Elliot, Augustus G. American physician.
- Elkins, Stephen Benton. Former United States senator.
- Ellis, Robert Wheelock. Canadian geologist. Died May 23; born, 1848.
- Ellis, Rowland. Bishop of Aberdeen. Died December 7; born, 1841.
- Ely, Smith. American public official.
- Emmons, Samuel Franklin. American geologist.
- Erdmann, C. J. Former member of Congress from Pennsylvania. Died January 15; born, 1847.
- Erlanger, Baron Friedrich. German banker. Died May 22; born, 1832.
- Erskine, Sir James Elphinstone. English admiral.
- Evans, Elizabeth Edson. American author.
- Ewald, Paul. German theologian and educator. Died June; born, 1857.
- Eytling, Rose. American actress.
- Farman, Elbert Ell. American lawyer.
- Faunce, Daniel Worcester. American Baptist clergyman.
- Fenn, Henry. American artist.
- Ferguson, Henry A. American landscape painter.
- Ferris, John Mason. American clergyman.
- Fertig, John. A pioneer in the petroleum industry. Died March 19; born, 1837.
- Filley, Charles C. American traveler and explorer. Died February 3.
- Firmin, Antenor. Former Haitian official and revolutionary commander. Died September 19.
- Fitzgerald, Oscar Penn. American bishop.
- Flameng, Léopold Josef. French etcher and engraver. Died September 5; born, 1832.
- Fleming, Williamina Paton. American astronomer.
- Fluegel, Maurice. American Jewish rabbi, historian, and political economist. Died February; born, 1832.
- Fogazzaro, Antonio. Italian novelist.
- Follett, Martin Dewey. American jurist.
- Folts, J. Philo. American philanthropist. Died November 9.
- Forest, John Anthony. American Roman Catholic bishop.
- Foss, Sam Walter. American librarian and poet.
- Foster, Frank Pierce. American physician and teacher.
- Francis Charles Spencer. American public official.
- Franklin, Walter Simonds. American financier. Died December 3; born, 1835.
- Fraser, Alexander Hugh Ross. American librarian. Died May 10; born, 1866.
- Freeborn, George C. American physician and educator. Died October 30; born, 1849.
- Freeden, John Pierre. American educator. Died December 2; born, 1844.
- Freeman, John Charles. American scholar and educator.
- Frémont, John Charles. Rear-admiral of the United States navy.
- Frere, Mary Eliza Isabella. English writer. Died February; born, 1847.
- Frey, Friedrich Hermann. "Martin Greif." German lyric poet.
- Frye, William Pierce. United States senator.
- Fyles, Franklin. American playwright.
- Galton, Sir Francis. English scientist.
- Gamboa, José María. Former assistant secretary of state of Mexico, and Mexican minister to Argentina. Died September 12.
- Gansbacher, Josef. American musician.
- Gibb, Arthur. American merchant. Died January 13; born, 1858.
- Gibson, William Campbell. Rear-admiral of the United States navy.
- Gilbert, Sir William Schwenck. English humorist.
- Gilman, Edwin Robinson. American engineer and manufacturer. Died February 9; born, 1864.
- Gilroy, Thomas F. American public official.
- Glick, George Washington. American public official.
- Girouard, Désiré. Canadian jurist. Died March; born, 1836.
- Goldberg, Hirsch. A Hebrew rabbi. Died December 24.
- Gordon, George Washington. American soldier.
- Gorst, Sir Eldon. British administrator.
- Gower, Merritt Melville. American missionary. Died February 3; born, 1833.
- Greene, William Cornell. American capitalist.
- Greenleaf, Charles Ravenscroft. American physician.
- Gregory, Robert. English clergyman.
- Greif, Martin. See Frey, F. H.
- Griggs, William. English artist. Died December; born, 1832.
- Grünhagen, Colmar. German historian. Died August; born, 1827.
- Guild, Curtis, Sr. American journalist.
- Guillot, Anatole. French sculptor. Died February; born, 1866.
- Gullmant, Félix Alexandre. French musician and composer.
- Haase, Friedrich. German actor.
- Haidarabad, Mir Mahbub Ali Khan Bahadur, Nizam of. An Indian prince. Died August 29; born, 1866.
- Haines, Edward B. American editor and publisher. Died May 3; born, 1846.
- Hall, Thomas. American inventor. Died November 19; born, 1834.
- Hallowell, Susan Maria. American botanist.
- Halsey, N. Whitmore. American banker. Died July 1; born, 1856.
- Ham, Thomas J. American editor. Died February 11; born, 1837.
- Hamlin, Charles. American lawyer.
- Harlan, John Marshall. Associate justice of the Supreme Court.
- Harpster, John Henry. American clergyman.
- Harrigan, Edward. American actor and playwright.
- Harrison, James Albert. American philologist.
- Hart, Sir Robert. Former inspector-general of the Imperial Maritime Customs, China.
- Haskell, Ella (Knowles). American lawyer and public official.
- Hastings, Thomas Samuel. American theologian.
- Hayne, Joseph Elias. Afro-American clergyman.
- Hedges, Henry P. American jurist.
- Henry, John Edgar. English theologian and educator. Died February 13; born, 1841.
- Hepburn, James Curtis. American physician.
- Herrmann, Esther. American philanthropist and club woman. Died July 4; born, 1823.
- Hieronymi, Karl von. Hungarian minister of commerce. Died May 4.
- Higginson, Thomas Wentworth. American clergyman and author.
- Hill, John Lindsay. American lawyer. Died January 16; born, 1840.
- Hilterman, Justin. American educator, and priest of the Franciscan Order. Died February 23; born, 1839.
- Hinckley, John Franklin. American engineer and bibliophile. Died February 20; born, 1849.
- Hinkle, Anthony Howard. American philanthropist. Died May 25; born, 1843.
- Hires, George. Former congressman from New Jersey. Died February 16; born, 1844.
- Hitchcock, Edward. American physician and teacher.
- Hochstein, Anthony. American artist. Died November 2; born, 1829.
- Hodges, Charles Libbens. American soldier.
- Hoff, Jacobus Hendricus van't. Dutch chemist.
- Hofmann, Casimir. German musician. Died July.
- Holly, James Theodore. Bishop of the Protestant Episcopal Church in Haiti. Died March 26; born, 1833.
- Holmes, Sir Richard Rivington. English librarian and archaeologist. Died March 22; born, 1835.
- Hooker, Frank Arthur. American jurist.
- Hooker, Sir Joseph Dalton. English botanist.
- Hopewell, Melville R. American public official, lieutenant-governor of Nebraska. Died May 2.
- Hopps, John Page. English Unitarian clergyman. Died April 7; born, 1834.
- Horton, Marcus. American educator.
- Houssaye, Henry, Count. French historian.
- Howell, Edwin Eugene. American geologist.

Howland, Edward Cole. American journalist. Died July 10.

* Hughes, Charles James, Jr. United States senator.

Hunt, Charles Wallace. American engineer and inventor. Died March 27; born, 1841.

* Inch, Richard. Rear-admiral of the United States navy.

* Israels, Josef. Dutch painter.

* Ives, Halsey Cooley. American art director.

* Jaggard, Edward Ames. American jurist.

* Janeway, Edward Gamallel. American physician.

* Jansen, Wilhelm. German novelist.

* Janvrin, Joseph Edward. American physician.

* Jelly, George Frederick. American alienist.

Jessup, Samuel. American clergyman. Died February; born, 1833.

Joannon, Etienne. French artist. Died May; born, 1858.

John, Prince of Denmark. Died May 27; born, 1825.

* Johnson, Tom Loftin. American public official.

* Johnston, Samuel. American inventor.

* Jones, George William. American mathematician.

Jones, Thomas Rupert. English geologist. Died April; born, 1820.

Jordan, Richard. The world's champion checker player. Died October 8.

Judic, Anne-Marie. French opera singer. Died April 14; born, 1850.

Kawakami Otojiro. Japanese actor. Died December.

* Keith, William. American artist.

Kelly, Aloysius Oliver Joseph. American pathologist. Died February 23; born, 1860.

Kelly, George E. M. American army officer and aviator. Killed May 10, 1911.

* Kester, Vaughan. American novelist.

* Kildare, Owen Frawley. American author.

* King, Franklin Hiram. American agricultural scientist.

King, Thomas M. American railway official. Died September 13; born, 1845.

* Kinnicutt, Leonard Parker. American chemist.

Kipling, John Lockwood. English artist and educator, father of Rudyard Kipling. Died January; born, 1837.

* Klipp, Charles John. American surgeon.

* Kittredge, Albert Beard. American public official.

* Klein, Bruno Oscar. American musician.

Kline, Marcus C. L. Former member of Congress from Pennsylvania. Died March 10; born, 1845.

* Knapp, Herman. American surgeon.

* Knight, George Thomson. American theologian.

Knorr, Thomas. German art collector. Died December 13.

* Knott, James Proctor. American public official.

Kollock, Mary. American landscape painter. Died January; born, 1823.

* Komura Jutaro. Japanese statesman and diplomat.

Kountze, Charles B. American banker. Died November 18; born, 1844.

* Lambdin, Alfred Cochran. American editor and critic.

Langbein, George Frederick. American lawyer and writer on law subjects. Died May 27; born, 1843.

* Lannelongue, Odilon Marc. French surgeon.

* Larned, Charles William. American army officer.

Latch, Edward Biddle. American naval officer and biblical scholar. Died April 3; born, 1834.

* Latrobe, Ferdinand Claiborne. American lawyer and public official.

* Latta, James P. American public official.

* Lawes-Wittewronge, Sir Charles. English sculptor.

* Lawrence, Edward Addison. American educator.

Leaming, Thomas. American lawyer. Died December 14; born, 1858.

Le Baron, Francis. American Unitarian clergyman. Died February 16; born, 1824.

Lee, Theodore Storrs. American clergyman and missionary. Died August 24; born, 1873.

* Lefebvre, Albert Léon. French economist.

* Legros, Alphonse. French painter and etcher.

Lemley, John. American editor. Died January 28; born, 1844.

* Levasseur, Pierre Emile. French economist and educator.

Leveau, Gustave. French astronomer. Died February.

* Lewis, Sir George Henry. English solicitor.

Lewis, Pryce. Famous Union spy during the Civil War. Died December 6; born, 1828.

Lipman, Alvah S. American actor. Died April; born, 1855.

Lippincott, Craige. American publisher. Died April 7; born, 1846.

* Little, Charles Joseph. American theologian.

Lloyd, D. Frank. Assistant United States attorney-general. Died June 6; born, 1859.

Lloyd, Rodney MacLaine. British admiral, retired. Died May 17; born, 1841.

Loesser, Frederick. American merchant. Died August 6; born, 1833.

Loomis, Charles Battell. American humorist.

* Lord, Nathaniel Wright. American metallurgist.

* Lord, William Paine. American public official.

* Lore, Charles Brown. American jurist.

* Loudenslager, Henry Clay. American public official.

Lovering, Henry Bacon. Former member of Congress from Massachusetts. Died April 5; born, 1841.

* Low, Sir Robert Cunliffe. English lieutenant-general.

* Lowell, Francis Cabot. American jurist.

Luby, John Fraser. American naval officer. Died January; born, 1858.

* Ludlow, John Malcolm Forbes. English economist.

Lumière, Antoine. French painter. Died April; born, 1839.

* Lyall, Sir Alfred Comyn. English public official.

McAuliff, Cornelius. American editor. Died April 10; born, 1842.

McBean, Samuel. English physician and educator. Died November 4.

* McBride, George Wycliffe. American public official.

McCafferty, James. American detective. Died January 27.

* McCook, Henry Christopher. American clergyman.

* McCook, John James. American lawyer and soldier.

* McCullough, Myrtle (Reed). American writer.

* McDonnell, Allen. American Roman Catholic clergyman.

McFadden, Parmelee J. American editor. Died February 9; born, 1862.

* McGarvey, John William. American theologian.

* Mackey-Smith, Alexander. American bishop.

* McKeen, James. American lawyer.

* McLane, John. American public official.

* Macomb, David Betton. Rear-admiral, retired, of the United States navy.

* MacWhirter, John. English artist.

* Madison, Edmond H. American public official.

* Madriz, José. Former president of Nicaragua.

* Mahler, Gustav. Bohemian musical conductor.

* Mallalieu, Willard Francis. American bishop.

Mallory, R. DeWitt. American educator. Died January 29; born, 1851.

* Manderson, Charles F. American soldier.

* Mansell, Henry. American clergyman and missionary.

* March, Francis Andrew. American philologist.

* Maria Pia, Queen Dowager of Portugal.

* Mather, Robert. American lawyer.

* Matthews, Edmund Orville. Rear-admiral, retired, of the United States navy.

Matthews, Elizabeth St. John. American sculptor. Died April.

Mayo, William W. American physician. Died March 6; born, 1820.

* Mead, Charles Marsh. American theologian and educator.

Meigs, John. American educator. Died November 6; born, 1852.

Merrifield, Samantha H. American labor organizer and socialist. Died December 25; born, 1834.

Merritt, Israel J. American marine salvage expert. Died December 14; born, 1839.

Merry, William Lawrence. American diplomat.

* Mighels, Philip Verrill. American author.

Miller, Elizabeth Smith. American woman suffragist. Died May 22; born, 1822.

Miller, Thomas Noble. American inventor and manufacturer, and railway operator. Died December 16; born, 1835.

* Mills, Roger Quarles. Former United States senator.
 Mitchell, Alexander C. American public official and congressman from Kansas. Died July 7; born, 1861.
 * Mitchelson, Joseph C. American tobacco grower.
 * Moffat, David Halliday. American banker.
 Monica, Mother Mary. Head of the Order of Felician Sisters in America. Died September 16; born, 1828.
 Montgomery, J. J. American inventor of the aeroplane. Died October 21.
 * Morgan, Patrick Francis. Roman Catholic cardinal.
 Morgan, Charles Hill. American steel manufacturer. Died January 10; born, 1831.
 * Morgan, Michael Ryan. American soldier.
 Morinière, François la. Belgian painter. Died senator.
 * Mortimer, James. American public official.
 * Morton, Paul. American public official.
 * Moseley, Edward Augustus. American economist.
 * Mottl, Felix. German musician and musical conductor.
 * Mudd, Sydney Emanuel. American public official.
 * Munkittrick, Richard Kendall. American author and humorist.
 * Murphy, Edward, Jr. Former United States Senator.
 Nacum Pasha. Turkish ambassador to France. Died July 28.
 * Nash, Edwin A. American jurist.
 * Nash, Francis Philip. American scholar and educator.
 * Nation, Carrie. American woman suffragist.
 * Nazro, Arthur Phillips. Rear-admiral, retired, of the United States navy.
 * Neruda, Wilma Maria Francisca. Mme. Norman-Neruda. Lady Hallé. European violinist.
 * Nettleton, Alved Bayard. American soldier.
 * Nevius, Henry M. American lawyer and soldier.
 * Newcomb, Horatio Victor. American capitalist and railway official.
 * Nicholson, August S. American soldier.
 * Northcote, Henry Stafford, Northcote, first Baron. English nobleman.
 * Norton, Charles Stuart. Rear-admiral of the United States navy.
 Oden, Charles T. American Protestant Episcopal clergyman. Died May 28; born, 1840.
 * Olin, William Milo. American public official.
 * Oliver, Charles Augustus. American ophthalmologist.
 Oman, John Campbell. English scholar and authority on Indian subjects. Died May 31.
 Orcutt, Calvin B. American shipbuilder. Died January 30.
 * Ort, Samuel Alfred. American theologian and educator.
 * Osgood, Howard. American theologian and educator.
 * Pascal, Honoré. French architect.
 * Paget, Francis. English bishop.
 * Paré, William. Protestant Episcopal bishop.
 * Parker, Quannah. Indian chief. Died February 23; born, 1844.
 * Parmele, Mary Platt. American writer.
 Parry, Joseph. A Utah pioneer, known as the "Father of Irrigation." Died August 6; born, 1826.
 Patrick, William. Canadian educator. Died September 28; born, 1869.
 * Patterson, James O'Hanlon. American public official.
 * Pelletier, Sir Charles Alphonse. Canadian public official.
 Pennington, Edward J. American inventor. Died March 5; born, 1861.
 * Pennycuik, John. English engineer.
 * Phillips, David Graham. American author.
 Phillips, Frank J. American forester and educator. Died February 13.
 * Phipps, Sir Edmund Henry Constantine. British diplomat.
 * Pierantoni, Augusto. Italian jurist.
 * Pierson, Arthur Tappan. American Presbyterian clergyman.
 Pletsch, Ludwig. German journalist and writer. Died November; born, 1824.
 Piggoty, Cameron. American chemist. Died April 30; born, 1856.
 * Pilcher, James Evelyn. American surgeon.
 * Pitman, Benajah Langley. American Baptist clergyman.
 Pluart, Alphonse Louis. French traveler and philologist. Died February 13; born, 1852.

Pollard, Charles. English lieutenant-general. Died July 25; born, 1827.
 * Pollard, J. Percival. American author and playwright.
 Pomeroy, Laura (Skeel). American sculptor. Died August 23; born, 1833.
 Pottinger, Henry Allison. English scholar and librarian. Died February 18; born, 1824.
 * Poulson, Nils. American ironmaster and philanthropist.
 Powell, Walter Angelo. American architect. Died May 21; born, 1828.
 Pratt, Le Gage. Former congressman from New Jersey. Died March 9; born, 1854.
 * Pringle, Cyrus Guernsey. American botanist.
 * Proctor, Fletcher Dutton. Former governor of Vermont.
 Puchstein, Otto. German archæologist. Died March 10; born, 1856.
 * Pulitzer, Joseph. American journalist.
 Purdie, Henry A. American ornithologist. Died March 29.
 * Pyle, Howard. American artist and illustrator.
 * Quarles, Joseph Very. American jurist.
 Rainey, George P. American jurist. Died January 8; born, 1846.
 Randegger, Alberto. Austrian musical conductor and composer. Died December; born, 1832.
 * Rankin, Catherine Blanchard. American actress.
 Rathbone, Henry Reed. American soldier, who was with President Lincoln at the time of his assassination. Died August 15; born, 1837.
 * Reeder, William Herron. Rear-admiral of the United States navy.
 Regelsberger, Ferdinand. German historian and writer on law. Died March; born, 1831.
 Reid, Sir Hugh Gilzean. English newspaper publisher. Died November 5; born, 1836.
 * Reid, William Max. American journalist and author.
 Reidelbach, Hans. German historian. Died May; born, 1847.
 Reinhardt, Joseph W. American railway official. Died January 27; born, 1861.
 Reuss, Henry. Prince of. German soldier and nobleman. Died August 16; born, 1832.
 * Richards, Ellen Henrietta. American chemist.
 Rieth, Otto. German architect.
 Ridley, William. Anglican bishop.
 Robb, James Hampden. American public official. Died January 21; born, 1864.
 * Robert-Fleury, Tony. French artist.
 * Robertson, Edmund, Baron Lochee. English publicist.
 * Robertson, Peter. American dramatic critic.
 * Robie, Edward Dunham. Rear-admiral of the United States navy.
 * Robinson, William Callyhan. American educator.
 Robson, George. Clergyman of the United Free Church of Scotland. Died August 2; born, 1842.
 Rockwood, George Gardner. American photographer. Died July 11; born, 1832.
 Rogers, Guinness. English Congregational minister. Died August 20; born, 1822.
 Rogers, Watson M. American jurist. Died February 1; born, 1846.
 Rothschild, Albert, Baron von. Austrian financier. Died February 11; born, 1844.
 * Rothschild, Gustav Samuel James, Baron. Jewish financier.
 Rothschild, V. Henry. American merchant and philanthropist. Died May 16; born, 1836.
 Roty, Louis Oscar. French engraver. Died March 23; born, 1846.
 Rouffio, Paul. French artist. Died September.
 * Rouvier, Maurice. French public official, former prime minister.
 Rowe, Thomas. American architect. Died October 31; born, 1866.
 Rowlands, Henry Edwards. American philanthropist. Died January 9; born, 1848.
 Russell, Edward L. American railway official. Died January 28; born, 1846.
 * Russell, William Clark. English writer.
 * Russell, William Hepburn. American lawyer.
 * Ryan, Patrick John. American Roman Catholic archbishop.
 Saglio, Edmond. French philologist. Died December; born, 1828.
 Saint-Joseph. Arthur, Baron de. French chemist. Died August.
 * Sands, James Hoban. Rear-admiral of the United States navy.
 * Sanj-ed-Dowleh. Persian minister of finance.
 Scharling, William. Danish economist and public official. Died May; born, 1838.

- Schaus, Hermann. American art dealer. Died February 9; born, 1850.
- * Schley, Winfield Scott. American rear-admiral of the United States navy.
- Schleyer, Johann Martin. German linguist, inventor of Volapük. Died July 20; born, 1831.
- Schmid, Andreas. German theologian. Died May; born, 1840.
- * Schmucker, Samuel D. American jurist.
- Schreiber, Moses S. Hebrew scholar and divine. Died December 16.
- Schroers, John. American journalist. Died December 12; born, 1859.
- * Schwab, Lawrence Henry. American Protestant Episcopal clergyman.
- * Schwartz, Frederick A. C. American toy manufacturer. Died May 17; born, 1836.
- * Schweitzer, Johann Paul. German-American chemist.
- * Scudder, Samuel Hubbard. American naturalist.
- * Seebach, Wilhelmine. German actress.
- Segna, Francesco. Roman Catholic cardinal. Died January 5; born, 1836.
- Seligman, Leopold. American banker. Died December 5; born, 1831.
- Senator, Hermann. German physician and educator. Died July 14; born, 1834.
- Service, Robert. Scotch ornithologist. Died May; born, 1855.
- * Shaler, Alexander. American soldier.
- Shanney, John F. American contractor and financier. Died December 18; born, 1855.
- Shattuc, W. B. American soldier, former congressman from Ohio. Died July 13; born, 1841.
- * Sheldon, Joseph. American lawyer.
- * Shepard, Edward Morse. American lawyer and publicist.
- Shepperson, Alfred B. American cotton statistician and publisher. Died November 20; born, 1837.
- * Sherwood, William Paul. American pianist.
- Shimose, Masuchika. Japanese scientist and inventor of the high explosive used by the Japanese navy. Died September 7; born, 1859.
- * Singer, Paul. German politician.
- Skinner, Arthur Banks. English art director. Died March 7; born, 1861.
- * Smith, Archibald Carey. American naval architect.
- Smith, Freeborn G. American piano manufacturer. Died October 9; born, 1828.
- * Smith, Hannah Whitall. American Quakeress and philanthropist.
- Smith, James. American oil refiner, and an official of the Standard Oil Company. Died May 15; born, 1858.
- * Smith, James Roe. American physician and soldier.
- Smith, John Henry. Counselor of the Mormon church. Died October 13; born, 1848.
- Smith, William Alexander. American banker. Died June 1; born, 1820.
- Snellen, Pieter Cornelius Tobias. Dutch entomologist. Died April; born, 1834.
- Sokolowski, Martin. Polish writer on art. Died May.
- * Soley, James Russell. American lawyer and author.
- Sonnenberg, Max Hugo Liebermann von. Member of the German Reichstag. Died September 18; born, 1846.
- * Routhier, John. American engineer and inventor.
- Southmayd, Charles F. American lawyer. Died July 11; born, 1824.
- * Sowden, Arthur John Clark. American merchant and public official.
- * Spencer, Edgar A. American jurist.
- * Speranza, Carlo Leonardo. Italian educator.
- * Sperry, Charles Stillman. Rear-admiral, retired, of the United States navy.
- * Spielhagen, Friedrich. German novelist.
- * Squiers, Herbert Goldsmith. American diplomat.
- * Stannard, Henrietta Eliza Vaughan (Palmer). English novelist.
- * Steenstra, Peter Henry. American theologian.
- * Stetson, Charles Walter. American artist.
- Stevens, Jeannette. American writer. Died July 28.
- * Stiles, William Curtis. American clergyman and teacher.
- Stock, Elliot. English publisher and bookseller. Died March 1; born, 1838.
- * Stodder, Louis N. American naval officer.
- * Stolypin, Peter Arkadevitch. Prime minister of Russia.
- Story-Maskelyne, Mervyn Herbert Nevil. English mineralogist and librarian. Died May 20; born, 1824.
- Stradonitz, Reinhard Kekule von. German archaeologist. Died March; born, 1839.
- * Stretton, Hesba. English novelist.
- Stuart, Edward Craig. Anglican clergyman. Bishop of Waiapu. Died March 15; born, 1828.
- Sturges, Jonathan. American writer. Died June 9; born, 1855.
- Summerhayes, John W. American soldier. Died March 8; born, 1836.
- * Svendsen, Johan Severin. Swedish composer.
- Swanstrom, John Edward. American public official. Died February 15; born, 1853.
- Swaythling, Montague Samuel-Montague, first Baron. English financier and philanthropist. Died January 12; born, 1832.
- Swift, Noble P. American beef packer. Died July 16; born, 1831.
- * Swords, Edward Jenner. American railroad official.
- Tanzer, Arnold. American critic. Died December; born, 1841.
- * Taschereau, Sir Henri Elzéar. Canadian jurist.
- Tassama, Ras Bitodach. Regent of Abyssinia. Died April 10.
- Taylor, John H. American horticulturist. Died February 26; born, 1857.
- Taylor, Minetta. American linguist. Died July 26; born, 1850.
- Tchoumakoff, Theodore. Russian painter. Died February; born, 1834.
- * Terry, George Seth. American public official.
- * Terry, Silas Wright. Rear-admiral, retired, of the United States navy.
- * Tetlow, John. American educator.
- * Thayer, Nathaniel. American capitalist.
- * Thiry, John Henry. American bibliophile and philanthropist.
- * Thomas, Abner B. American jurist.
- * Thompson, Denman. American actor.
- * Thompson, Henry. Son-in-law of John Brown.
- * Thurston, Katherine Cecil (Madden). English novelist.
- * Tilford, Joseph Green. American soldier.
- Tower, Freeman Pratt. American Methodist Episcopal clergyman and educator. Died September 11.
- Townshend, John. American writer on legal subjects. Died August 11; born, 1820.
- * Treadwell, George A. American metallurgist and mining promoter.
- * Trille, Joseph. Rear-admiral, retired, of the United States navy.
- * Tripp, Bartlett. American public official.
- * Tschudi, Hugo von. German art director.
- * Tuttle, Hiram Americus. American public official.
- Tweeddale, William Montagu Hay, tenth Marquis of. English nobleman. Died November 25; born, 1826.
- Tyler, William. English Roman Catholic prelate. Died January 9; born, 1840.
- * Uhde, Fritz von. German painter.
- Underwood, Sarah A. American woman suffragist. Died March 16; born, 1839.
- * Uphues, Joseph. German sculptor.
- * Vahlen, Johannes. German philologist.
- * Vance, Wilson. American soldier and writer.
- * Vanderpool, John Henry. American artist and teacher.
- Vannuncini, Luigi. Italian teacher of music and conductor of opera. Died September; born, 1848.
- Varentrapp, Konrad. German historian. Died May; born, 1845.
- * Vaughan, General Sir John Luther. English soldier.
- Vayson, Paul. French painter. Died December 13; born, 1842.
- * Vinton, Alexander Hamilton. Protestant Episcopal bishop.
- * Vinton, Frederic Porter. American artist.
- * Virgin, Samuel Henderson. American clergyman.
- Viteck, John P. American educator. Died July 8; born, 1880.
- * Voorhees, Edward Burnett. American agricultural chemist.
- * Walker, Samuel. Irish jurist.
- Walsh, John R. American banker and promoter. Died October 23; born, 1837.
- * Ward, Elizabeth Stuart (Phelps). American author.
- Ward, Francis A. American philologist. Died August 9.
- Ward, H. Snowden. English editor and lecturer. Died December 7; born, 1855.

- Wardell, William Thomas. American capitalist and philanthropist.
- Ware, Eugene F. American public official and poet.
- Warner, Charles G. American railway official. Died May 13; born, 1844.
- Warner, James D. American mathematician and engineer.
- Wasdin, Eugene. American surgeon.
- Waters, Russell, Judson. American banker.
- Watson, Robert Spence. English politician. Died March 2; born, 1837.
- Webb, Alexander Stewart. American soldier and educator.
- Wells, Catherine Boott (Mrs. Kate Gannett Wells). American author.
- Wells, David Collin. American economist and educator.
- Wendell, Jacob, Jr. American actor. Died April; born, 1869.
- Wenker, Georg. German librarian and philologist. Died August; born, 1852.
- Wertheimer, Charles. English art dealer.
- West, Clifford Hardy. Rear-admiral, retired, of the United States navy.
- White, Erskine Norman. American Presbyterian clergyman. Died February 13; born, 1843.
- Whitehouse, Frederick Cope. American lawyer and archaeologist.
- Whittmore, William L. American educator. Died July 5; born, 1824.
- Whitaker, Ozi William. American Protestant Episcopal bishop.
- Whiting, William. American paper manufacturer.
- Whitney, Edward Baldwin. American jurist.
- Whitney, Henry Mitchell. American scholar and educator.
- Whitsitt, William Hath. American theologian.
- Wilde, George Francis Faxon. Rear-admiral, retired, of the United States navy.
- Wilder, Grace E. American missionary. Died April; born, 1861.
- Wilks, Sir Samuel. English physician. Died November 8.
- Williams, Abram Pease. Former United States senator.
- Williams, James. American lawyer and writer.
- Williams, Thomas T. American newspaper publisher. Died March 22; born, 1855.
- Wilson, Benjamin Lee. American educator and critic.
- Wilson, Ida (Lewis). Keeper of Lime Rock light.
- Wilson, William Robert Anthony. American author.
- Winslow, Kate (Reignoles). American actress. Died July 11; born, 1836.
- Winter, Sir James Spearman. Newfoundland public official.
- Winterburn, George William. American physician.
- Wolverhampton, Henry Hartley Fowler, Viscount. English public official.
- Wordsworth, John. Bishop of the Church of England.
- Work, Frank. American financier and sportsman. Died March 16; born, 1819.
- Wustmann, Gustav. German philologist and historian.
- Wyman, Walter. American public official, surgeon-general of the United States public health and marine hospital service.
- Young, Charles J. American Presbyterian clergyman. Died December 20; born, 1839.
- Zacharias, Eduard. German botanist. Died April; born, 1852.
- Zacher, Albert. German journalist and historian. Died May; born, 1860.
- Ziem, Félix. French artist. Died November; born, 1821.

NEPHELINE. See MINERALOGY.

NEPTUNE (Collier). See NAVAL PROGRESS, *Propulsion*.

NERUDA (NORMANN-NERUDA), WILMA MARIA FRANCISCA. A European violinist, died April, 1911. She was born at Brünn, Moravia, in 1839. Her father was organist of the cathedral of that city. She became a pupil of Jansa on the violin, and made her first appearance in Vienna in 1846. In 1849 she went to London to play at the Philharmonic in one of Berlioz's concerts. She then returned to the continent

and for several years traveled as a soloist, chiefly in Russia. In 1864 she visited Paris, and played with great success at the conservatory and elsewhere. In the same year she was married to Ludwig Normann, a Swedish musician. She returned to London in 1869, again playing at the Philharmonic. In the following year she played the first violin at the Monday Popular Concerts. In 1888 she married Sir Charles Hallé, with whom she made a tour of Australia in 1890-91. In 1899 she visited the United States.

NET, ARTIFICIAL. See CHEMISTRY, INDUSTRIAL.

NETHERLANDS, THE (or HOLLAND, KINGDOM OF). A constitutional monarchy of western Europe. Capital, The Hague.

AREA AND POPULATION. Area, 12,648 sq. miles. Population (census of December 31, 1909), 5,857,949 (2,898,941 males, 2,959,008 females); estimated December 31, 1910, 5,945,155. The 1909 census returns 5,788,193 Dutch, 37,534 Germans, 18,338 Belgians, 2645 French, 2102 English, 1223 Austro-Hungarians, 3908 of other, and 4152 of unindicated nationalities. According to religion the population is divided into Protestants, 3,334,487; Roman Catholics, 2,063,103; Jews, 106,409; other sects, 63,008; unindicated, 291,168. The rural population constituted 62.6 per cent., and the communal 37.4 per cent. of the total population. The Hague had (December 31, 1909), 270,109 inhabitants (estimated December 31, 1910, 280,515); Amsterdam, 568,130 (573,983); Rotterdam, 417,780 (426,888); Utrecht, 118,386 (120,208); Groningen, 76,282 (75,341); Haarlem, 70,299 (69,594); Arnhem, 58,221 (64,168); Leiden, 58,221 (59,112); Nimeguen, 55,828 (56,035); Tilburg, 50,326 (51,600); Dordrecht, 46,295 (46,862); Maastricht, 37,502 (37,653); Leeuwarden, 36,511 (37,014); Delft, 34,234 (34,388); Breda, 27,976 (27,445). In 1910 the marriages numbered 42,740; births (including still-births), 175,741; deaths (incl. st. bths.), 86,831; still-births, 6847; excess of births, 88,910; emigrants, 3220.

EDUCATION. Primary instruction is compulsory, and free in the public schools. The state, however, encourages and subsidizes private rather than public elementary instruction, though supplying the latter in districts lacking private schools. In 1908-9 there were 1037 private infant schools with 97,822 pupils (public, 161, with 28,289); 3273 public elementary schools, with 18,049 teachers and 563,438 pupils (1943 private, with 10,568 and 328,208); 334 schools for working people (not free), with 2579 teachers and 33,398 students; 90 middle-class schools, 1456 and 14,207; 30 classical schools, 455 and 2150; 4 public universities, 300 and 3564 (583 females). Special schools are numerous; and there is a private university with (1908-9) 168 students. The percentage of illiteracy in the 1909 conscripts was 1.4 (in 1875, 12.3). State expenditure (1908) on education £2,207,500; communal, £1,340,750.

AGRICULTURE. The total cultivated area (1909) was 2,408,866 hectares (arable land, 867,178; pasture, 1,206,491; gardens and orchards, 75,501; forest, 259,696); uncultivated (heath), 548,880; inland waters and morasses, 124,008; dykes and roads, 5711; untaxed land, 78,224; building and other lands, 47,293. Area under cereals follows, with yield, for two years (1911 preliminary), and per hectare in 1910:

	1000 hectares		1000 quintals		Qs. per ha.
	1910	1911	1910	1911	
Wheat	55	57	1,190	1,537	21.7
Rye	225	225	3,842	4,423	17.3
Oats	141	132	2,924	2,687	20.7
Barley	28	28	675	798	24.0

A livestock census taken in June, 1910, shows 2,026,943 cattle (1,690,463 in 1904), 1,259,844 hogs (861,840), 889,036 sheep (606,785), 327,377 horses (295,277), and 224,231 goats (165,497). (The 1904 figures relate to December.) The growing of bulbs and the manufacture of cheese for export are important industries. See AGRICULTURE.

OTHER INDUSTRIES. Output of coal from the state mines (1909), 1,120,852 metric tons, valued at 7,355,000 guilders. Distilleries in 1909, 482; sugar refineries, 11; beet sugar refineries, 28; salt works, 33; breweries, 444; vinegar manufactories, 74. The herring catch (North Sea) was valued (1909) at 11,207,618 guilders; oyster catch, 2,816,596 kilos. Vessels engaged in all fisheries (1909), 5366, carrying 20,378 persons.

COMMERCE. The special trade, great classes and totals, is given below in thousands of guilders for two years (C. & B.=coin and bullion):

	Imports		Exports	
	1909	1910	1909	1910
Foodstuffs ..	776,700	843,100	754,100	822,200
Raw mat'ls.	1,141,400	1,273,000	838,900	921,000
Mfrs.	508,300	572,700	442,900	508,400
Misc.	681,800	544,000	411,900	365,800
Tot. mdse.	3,107,700	3,232,800	2,447,800	2,617,400
C. & B..	29,700	32,400	6,900	14,900
Total	3,137,400	3,265,200	2,454,700	2,632,300

The following table shows the trade in cereals and vegetables in thousands of guilders:

	Imports		Exports	
	1908	1909	1908	1909
Wheat	142,085	211,308	105,837	167,950
Flour	74,174	74,649	14,493	21,707
Rye	33,707	41,255	18,921	24,225
Barley	51,490	56,826	36,949	38,939
Oats	24,270	35,096	20,339	26,985
Potato-flour ..	6,904	7,677	25,890	26,885
Buckwheat	1,862	2,293	486	757
Flax	644	453	31,451	26,884
Beetroot	321	355	2,803	3,252
Bulbs, etc.	1,805	2,078	12,621	14,850
Vegetables	5,100	5,400	60,600	51,000

Principal countries of origin and destination follow (value of trade in thousands of guilders):

	Imports		Exports	
	1909	1910	1909	1910
Germany ...	743,400	826,100	1,279,900	1,319,900
Russia	557,600	433,300	13,700	15,600
D. E. Indies	425,200	493,800	87,900	113,700
Gr. Brit....	291,500	321,700	485,300	528,800
U. States...	290,600	295,200	99,500	84,700
Belgium ...	289,900	301,000	288,600	329,800
P. E. Indies	102,500	81,000	2,900	3,800
Spain	78,000	83,200	5,800	6,000
Brazil	40,100	29,900	2,900	1,200
Rumania ...	39,100	68,900	7,300	4,000
Sweden	34,700	52,600	15,600	18,300
Norway	33,300	32,800	13,200	16,500
France	28,700	38,100	18,800	23,700
Africa	11,300	10,800	12,900	31,700
Italy	9,900	10,700	23,100	24,000
Turkey	1,500	15,000	19,300	21,700
Other	152,100	171,100	78,000	88,900
Total	3,137,400	3,265,200	2,454,700	2,632,300

A few duties of a fiscal character are levied, the Netherlands being otherwise a free-trade country. Vessels entered (1910), 1271 sailing, of 1,131,694 cubic meters (Dutch, 748, of 323,811); 13,603 steam, of 38,585,928 (Dutch, 3545, of 10,385,550). Cleared, 1535 sailing, of 1,412,102 cubic meters (Dutch, 888, of 442,291); 14,723 steam, of 44,429,824 (Dutch, 3665, of 11,526,440). Merchant marine, January 1, 1910: 764 vessels, of 1,512,046 cubic meters (steam 324, of 1,382,369).

COMMUNICATIONS. Railways in operation January 1, 1911, 3234 kilometers. State telegraph lines, 7526 kilometers; wires, 36,883; offices, 1392 (state, 1041). Telephone wires, 161,515 kilometers urban, 66,380 inter-urban. Railway receipts and expenditure (1909), 57,539,000 and 50,304,000 guilders respectively; state telegraph, 2,529,000 and 3,943,000; post office, 15,176,000 and 13,083,000; telephone (inter-urban and international), 1,090,000 and 1,527,000.

FINANCE. The monetary unit is the guilder (or florin), worth 40.2 cents. In the table following, budget estimates for three years are given:

	1910	1911	1912
Revenue	188,326,473	194,237,010	202,068,215
Expenditure	207,187,206	213,756,101	222,017,863

Final figures for 1909 place the revenue at 190,789,054 guilders (ordinary, 188,783,954); the expenditure at 197,229,209 (war, 46,737,505; debt, 36,358,529; public works, 13,069,857; general, 101,063,318). The principal items of the budget for 1912 are as seen below:

Revenue	1000 gl.	Expenditure	1000 gl.
Excise	59,630	Int. adm'n'tion..	39,711
Direct taxes ...	47,433	Public debt	37,843
Stamps, etc.	29,500	Interior (dept.)...	37,137
Posts	16,688	War	30,299
Customs	13,825	Finance, etc.	29,080
Telegraphs, etc...	4,573	Navy	20,365
Railways	4,188	Justice	10,964
Pilot dues	3,300	Agriculture, etc...	10,876
Domains	1,652	Cultural Office ..	2,714
Lottery	655	Foreign Affairs...	1,265
Mine duties	85	Civil list	945
Misc.	20,474	Cabinet, etc.	768
Total	202,068	Misc.	50
Total	202,068	Total	222,018

The public debt stood (1912) as follows: 1,183,237,700 guilders capital, 32,462,363 interest; amortization, 5,381,000.

NAVY. The effective naval strength at the end of 1911 was as follows: 9 armored and 6 protected cruisers (66,431 aggregate tons), 3 armored coast-defense vessels (8713), 3 river gunboats (1144), 11 gunboats (2965), 2 torpedo-boat destroyers (about 900) for the colonies, 30 torpedo boats (3250), and 9 additional for the colonies, 2 mine layers and 1 for the colonies, and 2 submarines.

Two destroyers (*Fret and Wolf*) for service in the Dutch East Indies (displacement 415 tons) were completed in 1911 and two more were building. A submarine was launched January 30, 1911, and completed within the year; and another was ordered. Personnel (including the marine infantry), 11,000 officers and men.

ARMY. The army of the Netherlands is really

a national militia in which recruits serve for short enlistments. Every citizen is liable for 15 years service, 8 of which is spent in the militia and 7 in the landwehr. In practice an annual contingent of about 17,500 is obtained by lot in addition to a certain number of men secured by voluntary enlistment. The field army as permanently organized would mobilize with 4 divisions, including all arms of the service, each division consisting of 423 officers, 18,333 non-commissioned officers and men, 2544 horses and 561 wagons.

The war budget for 1912 was raised on July 1, 1911, to 30,209,000 guilders and provided for a total effective strength as in the following table:

	Officers	Men
Active army	2,025	21,558
Reserve	729	104,536
Cadre reserve .....	...	1,368
Landwehr	426	50,235
Total	3,180	177,694

This table shows an increase of 5000 men over the year 1910. Compared with the budget of 1911 there is an increase of 2,284,090 francs for the improvement of the officers' pay. The improvement of the fortifications about Amsterdam was provided for in the allowances. A royal decree of October 6, and a ministerial circular of November 9, in reference to the contingent for 1912, preserved the arrangement of 1911 as follows: 17,500 men, of whom 12,300 (including 400 for the navy) were to serve eight months and a half, and 5200 are to serve four months.

GOVERNMENT. The sovereign (in 1911, Queen Wilhelmina) is the executive and acts through a responsible ministry. The States-General, consisting of an upper or first chamber of 50 members, and a second chamber of 100 directly elected deputies, is the legislative body. The ministry (1911) constituted February 12, 1908, was as follows: Minister of the Interior, Dr. Th. Heemskerk; Foreign Affairs, Jhr. Dr. R. de Marees van Swinderen; Finance, Dr. M. J. C. M. Kolkman; Justice, Dr. E. R. H. Regout; War, Capt. H. Colijn; Marine, Vice-Admiral J. Wentholt; Internal Administration, Dr. L. H. W. Regout; Agriculture, Industry, and Commerce, A. S. Talma; Colonies, J. H. de Waal Malefijt.

HISTORY. A Customs Tariff Amendment bill was submitted by the government to Parliament early in April. This left coal, ore, wheat, yarn, and certain other raw materials duty free, but subjected to an import duty of 3 to 6 per cent. ad valorem, half-finished articles, and taxed nearly finished articles 10 per cent., and wholly finished articles 12 per cent. The measure gave the government power of retaliation when necessary. The revenue from it was estimated at 10,000,000 florins, of which 9,000,000 were to be annually applied to provisions for old age pensions. The Coast Defense bill took up much of the time of the States-General. This scheme, involving a heavy expenditure for the renewal of the coast defenses, including the fortification of Flushing, caused much comment in the European press. Some regarded it as the result of Germany's pressure to secure the coast against Great Britain in the event of a war between that country and Germany. The fact that the

bill made no provision for the defense of the eastern frontier was regarded as significant. The Dutch foreign minister, however, denied any interference in Dutch internal affairs on the part of any foreign power.

NETTLETON, ALFRED BAYARD. An American soldier, journalist, and author, died August 11, 1911. He was born in Berlin, Delaware county, O., in 1838, and attended Oberlin college 1858-61. Before he had finished his college course he enlisted in the federal army and served throughout the Civil War, rising to the rank of brevet brigadier-general, which he was given for gallant and meritorious service. He took part in seventy-two battles and minor engagements during the war. At the close of the war he studied law and in 1867-1868 was editor of the Sandusky Daily Register. In the following year he became publisher of the Chicago Advance. From 1870 to 1875 he was associated with Jay Cooke in the projection and construction of the Northern Pacific Railroad. He was for the year following editor of the Philadelphia Inquirer, and then for three years engaged in mining and manufacturing. In 1880 he founded the Minneapolis Daily Tribune, of which he remained editor until 1885. From 1884 to 1889 he was assistant secretary of the United States Treasury and was acting secretary for several months following the death of Secretary Windom. In 1909 he retired from business to do literary work. He was the author of *Trusts or Competition?* (1900), and of many pamphlets and magazine articles.

NEVADA. POPULATION. The Thirteenth Census showed a population in 1910 of 81,875, as compared with 42,335 in 1900, an increase of 93.4 per cent. in the decade. The only city of considerable size in the State is Reno, with a population in 1910 of 10,867.

AGRICULTURE. The acreage, production, and value of the leading crops in 1910 and 1911 were as follows:

	Acreage	Prod., bu.	Value
Corn .....1911	1,000	30,000	\$27,000
.....1910	1,000	30,000	30,000
Wheat .....1911	36,000	1,018,000	968,000
.....1910	30,000	795,000	866,000
Oats .....1911	8,000	360,000	223,000
.....1910	7,000	313,000	197,000
Potatoes ..1911	8,000	1,280,000	1,197,000
.....1910	6,000	900,000	720,000
Hay .....1911	254,000	864,000	8,208,000
.....1910	231,000	785,000	8,478,000

a Tons.

MINERAL PRODUCTION. The State is one of the largest producers of gold and silver. In the production of the former the State ranked third in 1910, being surpassed only by California and Colorado. In that year the output was 913,015 fine ounces, valued at \$18,873,700. The production of silver in 1910 was 12,366,000 fine ounces, valued at \$6,677,600. This was the largest amount of silver produced in any State in that year. The output of gold in 1911, according to the preliminary figures of the Director of the Mint, was 917,605 fine ounces, valued at \$18,968,578. This was almost precisely the value of the product of 1910. The silver produced in 1911 was 10,851,571 fine ounces, valued at \$5,858,364, a considerable decrease from the product and value of 1910. In 1911 Nevada lost place in the production of silver as its output was surpassed by that of Utah and Montana.

The State produces a considerable amount of copper. The output in 1910 was 64,494,640 pounds, as compared with 53,849,281 pounds in 1909. The increase was entirely from the Ely district in White Pine county. In this district is produced practically all the copper mined in the State.

The output of copper in the State in 1911 showed a slight increase over the production of 1910. The main production as in the previous years was in the Ely district by the Nevada Consolidated Copper Company. The smelting plant of this company was remodeled for the use of oil as fuel instead of coal.

MANUFACTURES. Statistics relating to the manufactures of the State were included in the Thirteenth Census, taken in 1910. These figures cover the calendar year 1909. The results will be found summarized in the table below. As will be seen from this table, the State has a small number of manufacturing establishments and they are not of great individual importance. The largest number of men in any one industry are employed in the car shops of railroad companies. These number 818. Second in point of numbers were the lumber and timber products, and third, printing and publishing. Of the total number of persons engaged in the manufacturing industries, 8.8 per cent. were proprietors and officials, 6 per cent. clerks, and 85.2 per cent. wage earners.

The following table gives a summary of the results of the census for the calendar years 1909 and 1904, with per cent. of increase 1904-9:

	Number or amount 1909	1904	In- crease
Number of establishments	177	115	53.0
Persons engaged in manufactures	2,650	1,016	160.8
Proprietors and firm members	137	108	26.9
Salaried employees	256	160	141.5
Wage earners (average number) ...	2,257	802	181.4
Primary horsepower	7,765	2,334	174.0
Capital	\$ 9,807,000	\$2,892,000	239.1
Expenses	11,082,000	2,632,000	321.0
Services	2,360,000	819,000	188.2
Salaries	378,000	126,000	200.0
Wages	1,982,000	693,000	186.0
Materials	8,366,000	1,628,000	413.9
Miscellaneous	356,000	185,000	92.4
Value of products	11,887,000	3,096,000	283.9
Value added by manufacture (value of products less cost of materials)	3,521,000	1,468,000	139.8

EDUCATION. In 1910 there were in the State 12,319 children of school age. Of these 6375 were boys and 6060 girls. Special attention was given during the year to securing teachers who were better qualified. More than \$250,000 was expended in 1909-10 for new school buildings in Reno, Elko, Ely, and other towns of the State. There has been noted an increased attendance in high schools. Over 800 pupils are doing high school work in the State, as compared with 600 in 1908.

FINANCE. The total receipts for the fiscal year 1911 amounted to \$904,882, and the disbursements to \$1,128,347. On January 1, 1911, there was a balance on hand of \$655,531, and on December 31, 1911, a balance of \$522,065.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State included the Orphans' Home, the State Prison, and the Hospital for Mental Diseases.

POLITICS AND GOVERNMENT

Aside from the meeting of the State legislature there was little of political importance in the State during the year. The most important measures passed at the session are noted in the paragraph *Legislation*, below. On January 24 the legislature reflected George S. Nixon to the United States Senate. The election of Senator Nixon is unusual, in that he is a Republican, while the legislature which elected him was Democratic on joint ballot. Senator Nixon received a majority of the popular vote for the nomination in November, 1910, in spite of the fact that the legislature elected at that time was Democratic. In accordance with the registered will of the people he was chosen senator. On March 14 the Senate adopted a measure submitting to the people the question of woman suffrage.

LEGISLATION. The important measures passed at the legislative session of 1911 included the following: Provision was made for a new policy in the penal system of the State, including the employment of convict labor on the public roads and highways. A State bureau of industry, agriculture, and irrigation was created. The duty of this commission is to study the industrial problems of the State, to conduct experiments in reclamation, to supervise the operations of the State statute supplementing the federal Carey act, to advertise the State in all proper ways, and generally to promote industry, agriculture, and irrigation. An act was also passed supplementing the federal Carey act. This is designed to stimulate the reclamation of public lands in the State. The powers and duties of the State mine inspector were enlarged. Compulsory school education between the ages of 8 and 16 years was provided for. A comprehensive measure was enacted regulating banks, banking, and other matters relating thereto. It is made unlawful to persuade workmen to come into the State or to change from one place to another in the State through false representations concerning the kind or character of the work to be done or the compensation to be paid, or sanitary or other conditions of their employment, or as to the existence or non-existence of strikes or other labor troubles. The power of the State Railroad Commission was enlarged, making that commission ex officio a public service commission for the regulation and control of certain public utilities. The existing primary law of the State was elaborately amended. A workmen's compensation law was enacted, and a juvenile court was created.

STATE OFFICERS: Governor, T. L. Oddie; Lieutenant-Governor, G. C. Ross; Secretary of State, George Brodigan; Treasurer, William McMillan; Comptroller, Jacob Eggers; Superintendent of Public Instruction, J. E. Bray; Attorney-General, C. H. Baker—all Democrats, except Oddie, Eggers, and McMillan, Republicans.

JUDICIARY. Supreme Court: Chief Justice: James G. Sweeney, Dem.; Justices, George F. Talbot, Dem.; Frank Norcross, Rep.; Clerk, Joe Josephs, Dem.

STATE LEGISLATURE, 1911: Senate, Democrats, 13; Republicans, 7; House, Democrats, 24; Republicans, 25; joint ballot, Democrats, 37; Republicans, 32; majority, Senate, Democrats, 6; House, Republicans, 1; joint ballot, Democrats, 5.

The representatives in Congress will be found in the article UNITED STATES, *Congress*.

NEVIUS, HENRY M. An American lawyer and soldier. He was born in Monmouth, N. J., in 1841 and received an academic and high school education in Freehold, N. J., and Grand Rapids, Mich. He served throughout the Civil War as private, second and first-lieutenant. While serving in the last named rank he lost an arm in front of Washington. He was honorably discharged in 1865. He engaged in the insurance business and held several government appointments. He was admitted to the bar in 1873 and practiced at Freehold and Red Bank, N. J. He served from 1888 to 1890 in the New Jersey Senate. In the last year he was president. He was appointed judge of the Circuit Court of Hudson county in 1896, serving until 1903. During 1904-8 he was prosecuting attorney of Monmouth county. He was elected commander-in-chief of the Grand Army of the Republic in 1908.

NEWARK, N. J. See BUILDING.

NEW BEDFORD, MASS. PUBLIC LIBRARY. See LIBRARY PROGRESS.

NEW BRUNSWICK. A maritime province of the Dominion of Canada. Area, 27,985 sq. miles. Population (final returns, census of 1911, 351,889). Capital, Fredericton (population, 1911 preliminary, 7208). The executive authority rests in a lieutenant-governor (in 1911, Lemuel John Tweedie, appointed March 2, 1907) appointed by the governor-general of Canada and acting through an executive council (responsible ministry) and a unicameral legislative assembly of 44 members elected for four years. Premier in 1911, J. K. Flemming.

Early in the spring the discovery of natural gas and oil was reported near the town of Moncton. The supplies of natural gas were said to be very abundant and of exceptionally high grade. The oil was tested by experts who declared it to be equal to the best lubricating oil. Arrangements were made for piping the gas to Moncton, an important railway centre.

NEW CALEDONIA. A Melanesian island, constituting with its dependencies a French colony. Area, 7650 sq. miles. Population (1906), 55,886 (penal population, 7034); 1911 census, 50,680. Capital, Nouméa, with (1901) 6968 inhabitants. There are primary schools and a college at Nouméa. The state domain, the penal settlement, and the native reserve make up the settled area; more than half the country is wild and uncultivable. Coffee, corn, tobacco, sugar, grapes, manioc, and pineapples are raised, besides wheat, rubber, and cotton on a small scale. Value of mineral output (1909), 3,623,254 francs. The mines produced nickel ore (79,995 metric tons), cobalt ore (748), chrome ore (32,136), copper ore (8), and iron ore (10). Imports (1909), 9,418,645 francs; exports, 7,714,958. Vessels entered (1909), 102, of 155,944 tons; cleared, 99, of 144,200. A railway of 90 miles (Nouméa to Bourail) is under construction; 10 miles are completed. Telegraphs, 580 miles; telephone, 115; post offices, 40. Revenue and expenditure balanced (1909) at 3,588,000 francs; debt, January 1, 1910, 10,361. French expenditure (budget of 1911), 3,220,472 francs (1,533,700 for the penal settlement). Governor (1911), J. Richard.

Administratively dependent on New Caledonia

are the ISLE OF PINES (area, 58 sq. miles, pop. about 600); the WALLIS ARCHIPELAGO (40 sq. miles; about 4500 inhabitants); the LOYALTY ISLANDS (800 sq. miles); the HUON ISLANDS, almost barren; FUTUNA and ALOFI (about 1500 inhabitants).

NEWCOMB, HORATIO VICTOR. An American capitalist and railway official, died November 2, 1911. He was born in Louisville, Ky., in 1844. While still a young man he engaged in the coffee business in that city with his uncle. Following this he went to England, where he finished his education. When he was about thirty years of age he succeeded his father as president of the Louisville & Nashville Railroad. He showed his ability in railroad administration by organizing a belt line system connecting the terminals of thirteen railroads. In 1881 he became president of the Louisville & Nashville road and removed to New York. He at once took a leading place in official circles in that city. Among his enterprises was the organization of the United States National Bank. Of this bank he was president for fourteen months, when he was obliged to resign on account of ill health. He developed mental trouble and was confined in a sanitarium until 1895, when he was released as cured. Four years later he was again taken to the sanitarium, from which he was released as a result of legal measures in 1901.

NEW ELEMENTS. See CHEMISTRY.

NEWFOUNDLAND. An island lying off the northeast coast of North America; the oldest British colony. Capital, St. John's. The island has an area of 42,734 sq. miles, and a population (end of 1909) of 234,588. The part of Labrador dependent on Newfoundland covers 120,000 sq. miles and has 4026 inhabitants. St. John's had (1901) 31,501 inhabitants; Harbour Grace, 5184. Birth rate (1900) 30.01, death rate 15.43 per thousand. Immigrants (1909), 793; emigrants, 5457. Between forty and forty-five thousand children attend the various schools.

Fishing and agriculture are the important industries. Total value of fisheries products (1910), \$9,578,984. Unexploited mineral deposits of great wealth exist. The pulp and paper mills at Great Falls are among the most extensive and best equipped in the world.

Trade and finance statistics are given below for three years:

	1907-8	1908-9	1909-10
Imports	\$11,516,111	\$11,402,337	\$12,799,696*
Exports	11,815,769	10,848,913	11,824,997†
Revenue	2,829,019	2,947,869	3,447,989
Expenditure ..	2,785,835	2,947,869	3,137,775

* Flour, textiles, provisions, coal, kerosene and other oils, machinery, molasses, hardware, leather, and animals. † Codfish, \$6,544,604; copper ore, iron pyrites, etc., \$1,363,576; cod, whale, and seal oils, \$1,299,047; sealskins, \$460,222; tinned lobsters, \$337,835.

Great Britain furnished imports and received exports valued at \$2,940,401 and \$1,824,235 respectively.

Public debt, June 30, 1910, \$22,943,197. Governor (1911), Sir Ralph Champneys Williams. Premier, Sir Edward Morris.

Difficulty arose in the beginning of 1911 over the demand of the Americans to purchase her-ring cargoes at Placentia Bay. The attitude of

the government was said to be adverse to any concessions to the Americans unless they were ready to make reciprocal concessions. The execution of the fisheries treaty of 1908 was brought to a standstill by the action of the United States Senate. The treaty provided for the drafting of regulations concerning fishing rights in the internal waterways by a committee. The committee drew up the regulations, but they were so changed by the United States Senate that Canada would not accept them, and in September declared that she would withdraw altogether from the treaty.

NEW GUINEA. An island (the largest) of the East Indies, divided into British, Dutch, and German dependencies. See **DUTCH EAST INDIES**; **GERMAN NEW GUINEA**; **PAPUA**.

NEW HAMPSHIRE. POPULATION. The Thirteenth Census showed a population in the State in 1910 of 430,572, compared with 411,588 in 1900, an increase of 4.6 per cent. in the decade. The principal cities, with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Manchester, 70,063 (56,987); Nashua, 20,005 (23,898); Concord, 21,497 (19,362); Berlin, 11,780 (8886); Portsmouth, 11,269 (10,637).

MANUFACTURES. The Thirteenth Census included statistics of manufactures in the State. These are for the calendar year 1909. The chief results are given in the table below. The greater number of the manufacturing establishments are located in the southern part of the State, which possesses marked advantages for manufacturing, among which are an abundance of water power afforded by the Merrimac River, close proximity to the markets and business centres of New England and excellent transportation facilities. The industry whose products had the largest value in 1909 was that which included boots and shoes with cut stock and findings. In this there were 68 establishments, employing 14,211 wage earners. The value of the product was \$39,440,000. Next in point of value was the product of industries connected with cotton goods, including cotton small wares. There were 21 such establishments, employing 22,290 wage earners, and turning out a product valued at \$33,602,000. The industry connected with the manufacture of woolen, worsted, and felt goods, and wool hats numbered 39 establishments, employing 9486 wage earners, and turning out a product valued at \$16,731,000; lumber and timber products, 589 establishments, employing 8464 wage earners, with a product valued at \$15,284,000; paper and wood pulp industry, 34 establishments, employing 3413 wage earners, with a product valued at \$13,094,000; foundry and machine shop products, 81 establishments, employing 2396 wage earners, with a product valued at \$4,947,000; hosiery and knit goods, 21 establishments, employing 3129 wage earners, with a product valued at \$4,764,000; flour-mill and grist-mill products, 105 establishments, employing 116 wage earners, with a product valued at \$3,187,000; marble and stone work, 99 establishments, employing 1527 wage earners, with a product valued at \$1,818,000. Other industries whose product was valued at more than \$1,000,000 and less than \$2,000,000 were malt liquors, furniture and refrigerators, tobacco manufactures, and printing and publishing. The total number of persons en-

gaged in the manufactures of the State was 84,191, of whom 58,925 were male and 25,267 were female. The largest number of persons were employed in the manufacture of cotton goods. The great majority of the wage earners employed in the manufacturing industries of the State worked from 54 to 60 hours per week, or from nine to ten hours a day. Only 7 per cent. of the total worked less than nine hours a day. In 1909 1122 industries were owned by individuals, 396 by firms, and 424 by corporations. These included only the most important of the industries. The following table gives the summary of the results of the census for the calendar years 1904 and 1909, with per cent. of increase.

	Number or amount 1909	1904	In- crease
Number of establishments	1,961	1,618	21.2
Persons engaged in manufactures	84,191	69,758	20.7
Proprietors and firm members..	2,014	1,726	16.7
Salaried employees	3,519	2,666	32.0
Wage earners (average number)	78,658	65,366	20.3
Primary horsepower	293,991	218,344	34.6
Capital	\$139,990,000	\$109,495,000	27.8
Expenses	149,215,000	112,888,000	32.2
Services	40,391,000	30,665,000	31.7
Salaries	4,191,000	2,972,000	41.0
Wages	36,200,000	27,693,000	30.7
Materials	98,157,000	73,216,000	34.1
Miscellaneous	10,667,000	9,007,000	18.4
Value of products..	164,581,000	123,611,000	33.1
Value added by manufacture (value of products less cost of materials.	66,424,000	50,395,000	31.8

AGRICULTURE. The Thirteenth Census, taken in 1910, included the statistics of agriculture in the State. The figures given are of date of April 15, 1910. On that date the number of farms in the State was 27,053, as compared with 29,324 in 1900, a decrease of 7.7 per cent. The land in farms in the State amounted to 3,249,438 acres, as compared with 3,609,864 acres in 1900. The improved land in farms amounted to 929,185 acres. The average number of acres per farm was 120. The value of farm property on April 15, 1910, was \$103,704,196, as compared with a value in 1900 of \$85,842,096, an increase of 20.8 per cent. in value. The average value of land per acre was \$13.70 in 1910, as compared with \$9.83 in 1900. The average value of the farms in the State in 1910 was \$3800. The farms operated by owners and managers numbered 25,174; by tenants, 1879. The total number of farms decreased 2271 in the decade from 1900 to 1910. Of the farms operated by owners, those free from mortgage in 1910 numbered 18,119; mortgaged farms, 6234. Of the total number of farms owned, 24,347 were owned by native white farmers, 2691 by foreign-born white farmers, and 15 by negro and other non-white farmers.

The value of the domestic animals, poultry, and bees on the farms in the State on April 15, 1910, was \$11,910,478. There were 167,831 cattle, valued at \$5,240,122; 46,229 horses and colts, valued at \$5,266,389; 195 mules, valued at \$29,681; 45,237 swine, valued at \$504,174, and 43,772 sheep and lambs, valued at \$192,346. The various kinds of poultry numbered 924,859, valued at \$649,121. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	23,000	1,035,000	\$849,000
.....1910	22,000	1,012,000	698,000
Oats .....1911	12,000	406,000	248,000
.....1910	11,000	471,000	240,000
Potatoes ..1911	17,000	2,125,000	1,849,000
.....1910	17,000	2,550,000	1,326,000
Hay .....1911	640,000	a 672,000	11,558,000
.....1910	640,000	768,000	12,134,000
Tobacco ..1911	100	b 170,000	27,200
.....1910	100	172,000	25,800

a Tons. b Pounds.

EDUCATION. The total number of children between the ages of 5 and 16 in the State in 1909 was 37,575 boys and 37,349 girls. The average attendance in 1910 was 50,101. The number of public schools was 2113, graded schools, 1255, and high schools, 65. The average salary of teachers per month was \$52.78.

The State encourages by financial assistance the growth of a specially trained corps of teachers and professional supervision of schools. It guarantees every child an education in a high school or academy of college preparatory grade, or the equivalent. The State government also guarantees the academic efficiency of all secondary institutions. High schools and academies are rapidly opening their doors to higher education in agriculture, in the domestic and mechanic arts, and in commerce, but no school is allowed to undertake such lines of work unless it can first show a faculty specially trained for the work which it undertakes. The State stands well toward the head of the list of States, if not indeed at the very top, in the proportion of its pupils who complete the entire round of public schooling, from the primary school through high school, and later through college.

The State makes a large appropriation, calculated to stimulate purely rural communities, in the direction of more efficient public schools. This appropriation has been increased nearly 300 per cent. in the last five years. As an actual result, it is not uncommon to find a remote country town of excellent agricultural possibilities, but as yet sparsely settled, possessing a central schoolhouse, to which all the children in the township are conveyed in comfortable barges, where they are under the instruction of specially trained teachers, who are themselves supervised by a specially trained superintendent of schools, who gives his entire time to the work.

FINANCE. The total receipts for the fiscal year 1911 amounted to \$2,612,077 and the disbursements to \$2,707,535, leaving a balance on hand at the end of the year of \$283,987. The indebtedness of the State at the end of the fiscal year was \$463,867.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State, with their population, August 31, 1911, are as follows:

State hospital for insane, 489 male, 449 female, total, 938; State prison, 176 male, 2 female, total, 178; industrial school, 114 male, 32 female, total, 146; school for feeble-minded, 90 male, 90 female, total, 180; State sanatorium (tuberculosis), 18 male, 18 female, total, 36; almshouse population for the year ending August 31, 1911, 1173 male, 774 female, total, 1947; houses of correction, 1387 male, 89 female, total, 1476; county jails, 686 male, 39 female, total, 725.

The legislature of 1911 enacted many laws for the advancement of charities, correction, and general welfare of the State.

An appropriation of \$20,000 for each of the next two years was made for the treatment, in such sanatoria as have been approved by the State board of health, of indigent persons afflicted with tuberculosis in advanced stages, the board of charities and correction to have power to engage free beds for such persons.

POLITICS AND GOVERNMENT

The most important political events of the State during 1911 related to the session of the legislature, January 4 to April 15; the most notable measures enacted are mentioned in the paragraph *Legislation* below.

The platform of both parties in the campaign of 1910 demanded progressive legislation of a definite character. There had been no contest in the Democratic primaries which renominated Clarence E. Carr, but in the Republican primaries there had been an earnest contest between Robert P. Bass, the candidate of the progressive faction, and Col. Bertram Ellis, supported by the old machine leaders, including the members of the congressional delegation. Mr. Bass won, receiving about twice as many votes as his opponent. At the subsequent State convention the issues advocated by the progressive faction were written into the platform without opposition.

In his inaugural message Governor Bass called attention to the progressive legislation promised in the platforms of both parties, and reminded the legislators that they were bound in honor to do all in their power to carry out those pledges. Measures fully meeting all of the promises of the majority party became law except two—one providing that delegates to national party conventions should be elected by direct primaries, and the other a ratification of the proposed constitutional amendment authorizing Congress to impose a tax on incomes. Such bills passed the house, but failed in the senate, the latter by a close vote, the governor sending a special message urging affirmative action. The divisions on these questions were not along party lines.

A question that overshadowed all others before the legislature was focused in a bill of the Boston & Maine Railroad repealing clauses of acts of 1883 and 1889, forever forbidding the raising of fares and freights on railroad lines which were authorized to unite or consolidate, over those then in effect, if such union or consolidation was made. By virtue of such legislative authority, the Boston & Maine had come into control of practically all the railroad mileage of the State. In 1908 R. W. Pillsbury, who had been prominent in an agitation for legislation to reform the abuses in politics practiced by corporations, formally complained to the attorney-general that in 1903 certain freight rates had been advanced beyond such legal limit, and were being collected, and asked that the railroad be enjoined from such collections. The attorney-general brought action, but before the matter was finally determined by the court the railroad managers publicly declared their purpose to restore the rates of 1883 and 1889, unless the legislature should grant relief. A special legislative committee began an investigation, but as it developed the

time of the ordinary session was too short to make it thorough, the rates now in force were validated for the period from January, 1910, to July, 1913, and the subject referred to the new public service commission to investigate and report prior to the assembling of the legislature in January, 1913. The legislature also passed an act looking to the purchase of the Crawford Notch in the White Mountains, appropriating \$100,000 therefor.

LEGISLATION. Among the important measures passed at the legislative session of 1911 were the following: Acts were passed subjecting the State trust and banking companies to a stricter supervision by the State bank commissioner; corporations are prohibited from making contributions to political campaign funds; a measure was passed requiring publication of the names of all contributors to campaign funds and the amount given by each. In prosecutions for bribery no witness is to be excused because his testimony would tend to incriminate him, but in such a case he is not to be prosecuted. An important employers' liability act was passed, by the terms of which the employer is made liable for the negligence of other employees. The State board of public health was authorized to prohibit the use of common drinking cups in public places. A public service commission, to succeed a railroad commission, was created, with powers similar to those conferred by the New Jersey law. Enactments also provided for a tax commission, to succeed a board equalization; a registration fee for automobiles graded by horsepower; the filing by candidates of sworn statements of campaign expenses and receipts before and after the election. See **CHILD LABOR**; and **ARBITRATION AND CONCILIATION, INDUSTRIAL**.

STATE OFFICERS. Governor, Robert P. Bass; Secretary of State, Edward N. Pearson; Treasurer, Solon A. Carter; Auditor, Frank A. Musgrove; Adjutant-General, Herbert E. Tutherly; Attorney-General, Edwin G. Eastman; Superintendent of Education, Henry C. Morrison; Commissioner of Agriculture, Nahum J. Bachelder; missioner of Insurance, George H. Adams—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Frank N. Parsons, Rep.; Associate Justices, Robert J. Peaslee, Dem.; Reuben E. Walker, Rep.; John E. Young, Rep.; George H. Birgham, Dem.; clerk, A. J. Shurtleff, Rep.

STATE LEGISLATURE, 1911. Senate, Republicans, 16; Democrats, 8. House, Republicans, 218; Democrats, 174. Joint ballot, Republicans, 234; Democrats, 182. Republican majority—Senate, 8; House, 44; joint ballot, 52.

The representatives in Congress will be found in the article **UNITED STATES**, section *Congress*.

NEW HEBRIDES. A group of Melanesian islands, under the joint administration of France and Great Britain, with an area of 5166 sq. miles; population, 70,000. The islands are governed by the French and English high commissioners for the Pacific, acting through resident commissioners. French resident commissioner (1911), M. Noufflard (M. Repiquet, acting); English, M. King. The imports are estimated at about £53,000, and the exports at £43,000. Joint expenditure (1908), £30,060.

The debate on the colonial estimates in the French Chamber brought out a complaint of the former governor-general of Madagascar in regard

to the course taken by the Presbyterian missionaries in the New Hebrides. They were accused of having established a state of their own within the state and of combating French influence. In certain parts of the islands they had assumed administrative powers and established their own courts and prisons, thus violating the Anglo-French *condominium*. The critic pointed to the superiority of the British administrative service in the islands and declared that the French administration ought to be improved. The minister for the colonies declared his intention to enforce strictly the labor regulations in the islands.

NEW JERSEY. POPULATION. The Thirteenth Census showed a population in the State in 1910 of 2,537,167, compared with 1,883,669 in 1900, an increase of 34.7 per cent. in the decade. The principal cities with their population in 1910 and 1900 are as follows (the figures for 1900 are in parentheses): Newark, 347,469 (246,070); Jersey City, 267,779 (206,432); Paterson, 125,600 (105,171); Trenton, 96,815 (73,307).

AGRICULTURE. The Thirteenth Census, taken in 1910, included statistics of agriculture. These statistics are of date of April 15, 1910. According to these statistics there were on that date 33,487 farms in the State, as compared with 34,650 in 1900. The land in farms amounted to 2,573,557 acres, and the improved land in farms to 1,803,336 acres. The average acreage per farm was 76.9 acres. The total value of farm property, including land, buildings, implements, machinery, domestic animals, poultry, and bees, was \$254,832,665, as compared with a value of \$189,533,660 in 1900. The average value of all property per farm was \$7610; of land per acre, \$48.23. Of all the farms, 25,193 were operated by owners and managers, and 8294 by tenants. Of the farms operated by owners 11,983 were free of mortgage and 11,793 mortgaged. Of those owning and operating farms, 26,796 were native whites, 6215 were foreign-born whites, and 476 were negroes and other non-whites. The value of the various kinds of domestic animals and of poultry and bees was \$24,558,639, as compared with a value of \$17,612,620 in 1900. The cattle numbered 222,999, valued at \$8,393,117; horses and colts, 88,922, valued at \$12,012,512; mules, 4041, valued at \$621,774; swine, 147,005, valued at \$1,127,040; sheep and lambs, 30,683, valued at \$161,138. The fowls of all kinds numbered 2,597,448, valued at \$2,221,610. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

		Acreage	Prod., bu.	Value
Corn	1911	270,000	9,936,000	\$7,055,000
	1910	267,000	9,612,000	5,767,000
Wheat	1911	84,000	1,462,000	1,404,000
	1910	84,000	1,554,000	1,523,000
Oats	1911	71,000	2,024,000	1,012,000
	1910	72,000	2,671,000	1,176,000
Rye	1911	72,000	1,181,000	980,000
	1910	74,000	1,332,000	1,026,000
Potatoes ..	1911	84,000	6,132,000	6,439,000
	1910	87,000	9,135,000	5,938,000
Hay	1911	428,000	4,449,000	9,878,000
	1910	437,000	656,000	11,939,000

a Tons.

MINERAL PRODUCTION. The iron ore mined in the State in 1910 amounted to 521,832 long tons, valued at \$1,582,213, as compared with 543,720 long tons, valued at \$1,607,003.

The State produces a considerable quantity of zinc. The chief mines are the Mine Hill zinc mines in Sussex county. From these mines were taken 308,353 short tons of zinc in 1910, in addition to 67,324 short tons of crude oil.

EDUCATION. The total number of pupils between the ages of four and twenty enrolled in the schools on June 30, 1910, was 429,797. Of these 217,102 were boys and 212,695 were girls. The total expenditures of the year amounted to \$11,963,279, of which \$8,647,804 was for teachers' salaries. The number of male teachers employed in the State was 1483; female, 10,604. The average salary per year paid to all teachers was \$715.46.

FINANCE. The report of the treasurer for the fiscal year 1911 showed a balance on hand November 1, 1910, of \$4,545,188. The total disbursements during the year amounted to \$9,250,283 and the total receipts to \$8,014,876, leaving a balance on October 31, 1911, of \$3,301,781.

POLITICS AND GOVERNMENT

The political history of the year in New Jersey was of unusual interest, partly on account of the importance of the events themselves and partly because of the prominence of Governor Wilson as a candidate for the presidential nomination in 1912. With Governor Wilson there was elected in 1910 a Republican senate and it was anticipated that he would have difficulty in having measures which he advocated passed by the senators who were politically opposed to him. He was able, however, by force of his personality, to exercise an influence upon Republican senators in sufficient number to pass all the important measures which he proposed to the senate. These measures will be found noted in the paragraph *Legislation* below.

On January 25 the legislature elected James E. Martine United States senator. This was a signal victory for Governor Wilson, who had insisted that Mr. Martine was the proper candidate for the votes of the legislature. The New Jersey direct primary law in force at that time provided for an advisory vote at the primary election on candidates for United States senator. This vote, however, did not in any way bind the legislature. At the primary in the fall of 1910 there were two candidates for the Democratic nomination and three for the Republican nomination. Of the Democratic candidates Mr. Martine received a very large majority of votes. As soon as it was apparent that the new legislature was to be Democratic on joint ballot Governor Wilson declared that the vote for Mr. Martine at the primary made it the duty of the Democratic members of the legislature to vote for him for senator. The governor declared that this action would finally commit the State to the practice of electing to the Senate men indorsed at the polls by the people. Governor Wilson was opposed in this action by James Smith, Jr., who controlled the Democratic organization for the State. Mr. Smith had been formerly a United States senator and was again a candidate for the nomination. He urged that the primary vote for Mr. Martine was only a fraction of the total Democratic vote of the State and this could not be taken as representing the real sentiments of the party. He urged, furthermore, that the vote was only advisory and could not in any way bind the legislature, and finally, that it was unconstitutional for the

people to have anything to do with electing a senator, since that was the function solely of the legislature. Governor Wilson at once set about stirring up public opinion to bear on the legislators. When the two houses met separately to vote for senator, Mr. Martine received 40 votes, which was only one less than was necessary for a choice. Mr. Smith received ten votes. He thereupon withdrew as candidate and on the following day the legislature in joint session elected Mr. Martine by a vote of 47 to 21 for the leading Republican candidate, former Gov. Edward Casper Stokes.

Perhaps the most important measure enacted by the legislature was the so-called Geran bill, which is designed to extend the application of the direct primary law, provide the blanket Massachusetts ballot, and prevent fraud at elections. This bill was passed under the active leadership of Governor Wilson.

The act provides that the members of the election boards who have charge in each district of the registering and polling of voters, must be selected from such party members as have passed a civil service examination. The selection of these members must be made under the supervision of the judges of the Courts of Common Pleas and it must be made by lot. In cases of vacancies in these boards or removals for non-compliance with the law the places shall be filled through appointments by the judges. In presidential primaries provision is made for the election of delegates to national party conventions committed to specific candidates for the presidency. In the election of senators each candidate for the legislature is required to say whether he will or will not vote for the candidate who is nominated at the primaries of his party. All officials, including the governor and congressmen, must be nominated by direct primaries. The State committees of the parties are to be chosen by the members of the parties at the primaries. Party conventions shall consist of the party's legislative candidates its hold-over senators, and in a year when a governor is not to be elected, the governor is a member of his party convention. In years when a governor is elected, the gubernatorial candidates are members of the convention of their own party. Voters may enroll as members of one party or the other, but no voter can change from one party to another at the next succeeding primary. The ballot in use in the primaries must accord with certain specified provisions and in elections it must be a blanket ballot, containing the names of the candidates in alphabetical order, each name being printed but once and being accompanied with party designations.

The new primary law of the State was put into operation for the first time on September 28. The results of the election were diverse. In cases where nominees for legislatures and local officials were nominated, the party organizations were, in the main, successful. In Jersey City, however, both Republican and Democratic organizations were defeated. This is the first instance on record where an organization choice was defeated for the mayoralty of Jersey City. In these primaries were nominated 8 senators and a complete lower house. As a result of the elections held on November 7, 5 Republican and 3 Democratic senators were elected. As the result of a Republican victory in Essex county, the legislature chosen was Republican by a majority of 15 on joint ballot.

This gives control of both houses for the Republicans in 1912.

In addition to the State election on November 7, a number of important municipal elections were held during the year. These were, for the most part, on the question of commission government, which was authorized by the legislature of 1911. On June 13 the voters of Bayonne voted down the plan by 5 majority, and on June 20 it was adopted by Trenton. On June 27 the voters of Hoboken and New Brunswick rejected the commission plan. The vote taken in Jersey city on July 17 resulted in defeat for the commission government, but it carried in Passaic on July 25, and was defeated in Paterson on August 29. Altogether, 6 municipalities adopted the plan and 13 rejected it.

Several investigations for fraud in municipal and State elections were conducted in 1911, and in September it was discovered through the operation of the Geran act that several thousand persons registered fraudulently in Newark in 1910. A grand jury investigated the frauds alleged to have been practiced in Atlantic City, and 16 indictments were returned in August and 10 in September. In October a wealthy merchant and a clerk in the office of the city controller were convicted of buying votes.

LEGISLATION. Among the important measures passed at the legislative sessions of 1911 were the following: Acts prohibiting the publishing of indecent words, and making it a misdemeanor to bribe a duly appointed representative of a labor organization; an act providing for challenging jurors in civil and criminal cases; an act prohibiting the use of common drinking cups; an act regulating the expenditure of campaign funds; a measure creating a board of public utility commission; measures establishing a commission on old-age insurance and pensions, and an act providing for the commission government of cities and towns. Provisions were made for employers' liability and workmen's compensation, and an employers' liability commission was created. For a discussion of the election law passed by the legislature, see above. See **CHILD LABOR**; and **ARBITRATION AND CONCILIATION, INDUSTRIAL**.

STATE OFFICERS. Governor, Woodrow Wilson; Secretary of State, S. D. Dickinson; Treasurer, Daniel S. Voorhees; Auditor, William E. Drake; Comptroller, Edward I. Edwards; Attorney-General, Edmund Wilson; Adjutant-General, Wilbur F. Sadler, Jr.; Superintendent of Education, Calvin N. Kendall; Commissioner of Insurance, Vivian M. Lewis—all Republicans except Woodrow Wilson and Edward I. Edwards.

JUDICIARY. Supreme Court, Chief Justice, W. S. Gummere, Rep.; Justices, Charles W. Parker, Rep.; T. W. Trenchard, Rep.; Samuel Kalisch, Dem.; C. G. Garrison, Dem.; James J. Bergen, Dem.; Willard P. Voorhees, Rep.; James F. Minturn, Dem.; F. J. Swayze, Rep.; Clerk, William Riker, Jr., Rep.

STATE LEGISLATURE, 1912: Republicans, Senate, 11; House, 37; joint ballot, 48. Democrats, Senate, 10; House, 23; joint ballot, 33. Republican majority, Senate, 1; House, 14; joint ballot, 15.

The representatives in Congress will be found in the article **UNITED STATES**, section *Congress*.

NEW MEXICO. POPULATION. The Thirteenth Census showed a population in the State

in 1910 of 327,301, as compared with 195,310 in 1900, a gain of 67.5 per cent. in the decade. The principal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Albuquerque, 11,020 (6238); Roswell, 6672 (2049); Santa Fé, 5072 (5603).

AGRICULTURE. The acreage, production, and value of the leading crops in 1910 and 1911 were as follows:

	Acreage	Prod., bu.	Value
Corn .....1911	94,000	2,322,000	\$1,950,000
.....1910	89,000	2,047,000	1,842,000
Wheat ....1911	55,000	1,262,000	1,262,000
.....1910	41,000	820,000	820,000
Oats .....1911	48,000	1,862,000	1,061,000
.....1910	42,000	1,151,000	714,000
Potatoes ..1911	10,000	800,000	800,000
.....1910	13,000	611,000	635,000
Hay .....1911	221,000	5,575,000	7,475,000
.....1910	194,000	407,000	4,680,000

a Tons.

MINERAL PRODUCTION. The State is a producer of copper. In 1910 the output was 3,784,609 pounds, as compared with 5,031,136 pounds in 1909. The principal production is from the districts in Grant county. The production of copper in the State in 1911 showed a slight increase over the output of 1910. The most important event in the copper industry of the State during the year was the starting in October of the first unit of the Chino Copper Company's mill. The remaining units of the mill will be placed in commission in 1912 and the Santa Rita district will become an important producer.

The production of coal in 1910 showed a notable increase over that of former years. The output was 3,508,331 short tons, with a value of \$4,877,151, as against 2,801,128 tons in 1909, a gain of 707,193 short tons, or 25.25 per cent. The increased production was attributed partly to the strike in the coal mines of the Middle West and the northern district of Colorado and partly to the growth of population and the settlement of new lands in New Mexico, Arizona, and California. Both the bituminous and sub-bituminous coals of the State are rapidly growing in favor for domestic uses.

The State produces a considerable amount of gold and silver. The production of gold in 1910 was 23,337 fine ounces, valued at \$482,424. The silver production in the same year was 843,987 fine ounces, valued at \$455,753. Both the gold and silver production increased considerably over that of 1909. The gold production in 1911, according to the preliminary estimates of the Director of the Mint, was 30,955 fine ounces, valued at \$639,897. The silver produced in the same year was 1,142,335 fine ounces, valued at \$628,284, a continued increase over the production of 1910 in both gold and silver.

EDUCATION. The school system of New Mexico includes the institutions which are supported by general funds. These are the University of New Mexico, New Mexico College of Agriculture and Mechanic Arts, New Mexico Normal School, New Mexico Spanish-American Normal School, New Mexico Normal University, New Mexico School of Mines, New Mexico Military Institute, Institute for Deaf and Dumb, and Institute for the Blind. There are about 1200 public schools in the State supported by the regular school taxes, with an

enrollment of 56,000 pupils, 20,000 of whom are Spanish-Americans and 100 negroes. There are nearly 70 sectarian schools with an enrollment of 5000 pupils and about 20 private schools with an enrollment of 300 pupils. In addition there are 25 Indian schools under the direct federal supervision, with a total enrollment of 2000 pupils.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State, with their populations in 1911, are as follows: Penitentiary, Santa Fé, 378; Insane Asylum, Las Vegas, 259; Miners' Hospital, Raton, 125; Blind Institute, Alamogordo, 34; Deaf and Dumb Asylum, Santa Fé, 39; Orphans' School, Santa Fé, 111; St. Vincent's Hospital, Santa Fé, 115; Reform School, Springer, 18; Children's Home Society, Albuquerque, no report; Grant Hospital, Silver City, 20; Sisters of Mercy Hospital, Silver City, 53; Ladies' Hospital, Deming, no report; Eddy County Hospital, Carlsbad, no report; Relief Society, Las Vegas, 127; Sisters' Hospital, Albuquerque, monthly average, 55; Gallup Hospital, Gallup, no report; St. Mary's Hospital, Roswell, no report.

POLITICS AND GOVERNMENT

The year 1911 saw New Mexico, in all essential details, admitted to the sisterhood of the States after many years of ineffectual effort directed to that end. That there was a delay in the approval by Congress of the joint resolution formally declaring the Territory a State was the result of the objection of President Taft to certain features in the constitution of Arizona, as the joint resolution included both Arizona and New Mexico. The general details in relation to this will be found discussed more fully in the article ARIZONA.

The constitution prepared by the convention which met at Santa Fé, on August 4, 1910, and continued its deliberations until November 21, 1910, followed the older models, differing in this respect from the proposed constitution of Arizona, although a modified referendum was included in its provision and an elective corporation commission was provided. The initiative, recall, direct primaries, and constitutional prohibition were not included. It was known that President Taft had no objection to any of the provisions of this act and had it not been involved with the constitution of Arizona it would doubtless have been passed without difficulty by Congress and would have been signed by the President. The constitution was submitted to the popular vote on January 21, 1911, and it was approved by the people by a majority of more than 18,000. The most pronounced opposition was on the part of those who had advocated the inclusion of a clause providing for Statewide prohibition. There were certain provisions in the act which prevented an easy amendment and President Taft and certain senators found some objection to this. In the final resolution which was passed by Congress following the veto by the President of the original resolution, a condition was made that at the election held on November 7 the voters of the State should decide whether or not the constitution should be so changed as to make it easier to be amended.

Conventions for the nomination of officers to be elected on November 7 were held by the Republican and Democratic parties. The Re-

publican convention on September 30 pledged the party, if victorious, to repeal Section 5 of Article XXI. of the constitution, which stipulates that all persons to be qualified to hold a State office, including a legislative office, must be able to read and write and speak good English sufficiently to be able to conduct the affairs of the office without an interpreter. This provision was inserted as a result of criticisms made in the United States Senate, where great stress was laid on the fact that many New Mexican officials were unable to speak English. As Statehood had been practically granted, the Republican party declared its intention of returning to the old rules. Resolutions also were adopted declaring against the adoption of the measure to make the constitution easier of amendment, on the ground that the constitution was ratified by a majority of 18,000 people. The Democrats nominated for governor William C. McDonald, while the Republican nominee was Mr. Bursun. The election held on November 7 was in the nature of a surprise to those who had forecast its results. As a Territory New Mexico had been Republican and it was admitted to Statehood under Republican auspices, and the general impression was therefore that the Republican party would be victorious in the elections. A coalition was formed, however, between the Democrats and Progressive Republicans which resulted in the defeat of the regular Republican candidate for governor. The vote cast was, McDonald, 30,424; Bursun, 27,605. The Republicans, however, elected a majority of the members of both houses of the legislature, while the Democrats elected all State officers except auditor and attorney-general. The election of a Republican legislature insures two Democratic senators from the new State. The amendment to the constitution making that instrument subject to amendment at any time was carried by a vote of practically two to one. The Republicans and Democrats each elected one representative to Congress.

The proclamation declaring New Mexico a State, which is the last step to be taken in the final consummation of the act, had not been made by President Taft at the end of the year, but as the voters had complied with the conditions exacted by the President and Congress, there was no question of the prompt issuance of the proclamation.

NEW SOUTH WALES. A state of the Commonwealth of Australia. Capital, Sydney. Area, 310,372 sq. miles. Population (exclusive of aborigines), according to final returns of the census of April 3, 1911, 1,648,448. This figure includes 1714 persons in the new federal capital territory (area about 900 sq. miles). The per cent. of increase from 1901 was 21.67. There are a governor appointed by the British crown, a responsible ministry, and a parliament of two houses—the appointive Legislative Council and the elective Legislative Assembly. Governor in 1911 (appointed May 28, 1909), Rt. Hon. John Napier, Baron Chelmsford; premier (in the ministry constituted October 21, 1910), J. S. T. McGowen. See AUSTRALIA.

HISTORY. Parliament was opened on May 16 by Sir William Cullen, the lieutenant-governor. Increased estimates were announced for the ensuing year and increased taxation was declared to be inevitable on account of the falling off of state returns in customs and excise. Pro-

gress had been made in building railways and opening up unoccupied crown lands. The government's land policy as summed up in the words of the minister of lands, was "Land users before land speculators." An extensive work of development had been planned, including the bringing in of settlers and the expenditure of a large sum on railways and roads. A serious strike occurred among the wharf laborers, resulting in a temporary stoppage of shipping at Sydney. New South Wales rejected the referenda submitted by the federal government by a majority of over 100,000. A large number of the labor men declared that the questions involved in the referenda had no place in the party platform. Efforts of the national party by disciplinary measures to bring them into line were unavailing, and served only to embitter the dissidents. As the Labor party was in control of the New South Wales government, this defection was regarded as a serious blow to the national organization.

In response to a request of the Commonwealth government New South Wales declared its readiness to undertake the building of a cruiser and four destroyers for the Australian navy, the Commonwealth government to pay 8 per cent. on the outlay.

NEW THEATRE. See **DRAMA.**

NEW YORK. POPULATION. The Thirteenth Census showed a population in the State in 1910 of 9,113,614, as compared with 7,268,894 in 1900, an increase of 25.4 per cent. in the decade. The principal cities with their populations in 1910 and 1900 are as follows (the figures in parentheses are for 1900): New York, 4,766,883 (3,437,702); Buffalo, 423,715 (352,287); Rochester, 218,149 (162,608); Syracuse, 137,249 (108,334); Albany, 100,253 (94,151); Schenectady, 72,826 (31,682); Utica, 74,419 (56,383).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date there were 215,597 farms in the State, compared with 226,720 in 1900, a decrease of 11,123 in the decade. The land in farms was 22,030,367 acres, compared with 22,648,109 in 1900, a decrease of 617,742. The improved land in farms was 14,844,039 acres, compared with 15,599,986 acres in 1900. The average acres per farm in 1910 was 102.2, compared with 99.9 in 1900. The value of all farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$1,451,481,495, compared with \$1,069,723,895 in 1900, an increase of \$381,757,600, or 35.7 per cent. The average value of all property per farm was \$6732 (\$4718 in 1900). The average value of land per acre was \$32.13 (\$24.34 in 1900). Of the total number of farms in the State, 170,725 were operated by owners and managers, and 44,872 by tenants. Of the farms operated by owners, those free from mortgage numbered 93,118, and those under mortgage, 72,311. The native white farmers numbered 187,629; foreign born whites, 27,029; negroes and other non-whites, 939. Of the non-white farmers 635 were Indians, 295 negroes, 5 Japanese, and 4 Chinese. The value of the various kinds of domestic animals, poultry, and bees in 1910 was \$183,090,844, compared with a value of \$125,583,715 in 1900. The cattle numbered 2,423,003, valued at \$83,062,242; horses and colts, 59,008, valued at \$80,043,342; mules, 4052, valued at \$650,497; swine, 666,179, valued at \$5,905,272; sheep and lambs,

930,300, valued at \$4,839,651. Poultry of all kinds numbered in 1910, 10,678,836, valued at \$7,879,388. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	530,000	20,405,000	\$15,712,000
.....1910	525,000	20,108,000	12,668,000
Wheat .....1911	345,000	6,728,000	6,392,000
.....1910	355,000	8,414,000	8,077,000
Oats .....1911	1,310,000	38,645,000	19,709,000
.....1910	1,320,000	45,540,000	19,127,000
Rye .....1911	135,000	2,254,000	2,006,000
.....1910	140,000	2,562,000	1,896,000
Potatoes ..1911	375,000	27,750,000	24,975,000
.....1910	395,000	40,290,000	19,339,000
Hay .....1911	4,763,000	a 4,858,000	86,958,000
.....1910	4,811,000	6,351,000	87,009,000
Tobacco ..1911	3,800	b 5,054,000	525,616
.....1910	4,000	5,000,000	425,000

a Tons. b Pounds.

MINERAL PRODUCTION. The State ranks fourth in the production of iron ore. There were mined in 1910 1,287,209 tons, valued at \$3,848,683, as compared with 1,015,333 tons, valued at \$3,072,323 in 1909. See **IRON AND STEEL.**

EDUCATION. The year 1911 marked the 100th anniversary of the establishment of the State system of schools. In that year were 11,777 school districts and 12,094 school houses. The total attendance of pupils between the ages of 5 and 13 years was 1,421,443. The total appropriation for educational work during the fiscal year ended July 31 was \$7,051,074. The number of teachers employed in the public schools during the year was 40,280 women and 5086 men. There were paid in salaries to teachers \$36,169,810. In addition to those enrolled in the public schools the attendance in academies was 47,481; in normal schools, 6965; in teachers' training classes in schools, \$36,215; in Indian schools, 851; in evening schools, 146,222, and an estimated attendance of 225,000 pupils in private schools. The total amount paid for educational purposes during the year was \$76,863,712. The new education building in course of construction at Albany will be ready for occupancy early in 1912.

CHARITIES AND CORRECTIONS. The State Board of Charities in its annual report for 1911 points out the need of more public hospital beds in New York City. The hospitals in the city are greatly overcrowded. The Board of Estimate and Apportionment authorized for expenditure in 1912 over \$3,000,000 in the Department of Public Charities in New York City. In the institutions under the control of the State Board of Charities there were in 1911 over 80,000 people, classified as follows: Aged and friendless persons, 3501; almshouse inmates (exclusive of those classified below), 15,061; blind in almshouses, 417; blind in other institutions, 314; deaf in almshouses, 191; deaf in other institutions, 1791; dependent children, 31,931; Indian children (at Thomas Indian School), 182; disabled soldiers and sailors, 1967; epileptics in almshouses, 240; epileptics in Craig Colony, 1420; hospital patients, 11,034; idiotic and feeble-minded in almshouses, 1656; idiotic and feeble-minded in State institutions, 2632; juvenile delinquents, 3438, and reformatory inmates, 2250.

Appropriations for maintenance to the amount of \$1,890,993.90 are recommended for the seven-teen State institutions under the jurisdiction of

the board and the sum of \$2,100,880 for improvements, many of them greatly needed as well as long deferred.

CARE OF THE INSANE. The Psychiatric Institute of the State hospitals for the insane is situated on Ward's Island, in connection with Manhattan State Hospital, and is under the directorship of Prof. August Hoch, M. D. The number of inmates in the various hospitals at the close of the fiscal year, September 30, 1911, was as follows: Utica, 1522; Willard, 2389; Hudson River, 3011; Middletown, 2008; Buffalo, 1995; Binghamton, 2375; St. Lawrence, 1968; Rochester, 1459; Gowanda, 1109; Kings Park, 3436; Long Island, 758; Manhattan, 4598; Central Islip, 4377; Mohansic, 48; Matteawan, 796; Dannemora, 403; total, 32,298. There were also 1062 patients in the private hospitals licensed by the Commission in Lunacy, making a grand total of 33,360 patients. The total expenditure for maintenance was as follows: Officers' salaries, \$296,857.10; employees' wages, \$2,026,692.21; provisions, \$1,982,660.71; stores, \$96,527.44; commutation, \$81,428.15; ordinary repairs, \$152,286.71; farms and grounds, \$140,655.42; clothing, \$209,460.18; furniture and bedding, \$149,853.11; books and stationery, \$36,392.09; fuel and light, \$600,792.05; medical supplies, \$38,074.79; miscellaneous, \$182,500.17; transportation of patients, \$28,885.56; making a total of \$6,023,071.69. The receipts from partly or fully reimbursing patients, stewards' sales, and miscellaneous sources amounted to \$514,971.10. The commissioners are Albert Warren Ferris, M. D., Herbert P. Bissell, and William Cary Sanger.

POLITICS AND GOVERNMENT

The legislature met in 1911 and the most important measures, in addition to those referred to in the notes following, will be found in the paragraph *Legislation*, below.

Governor Dix, who was elected in November, 1910, sent his first message to the legislature on January 2. The greatest emphasis in the paper was placed upon the necessity for economy in the administration of the State. By detailed figures he showed the increase in the expenditures in recent years and pointed out that the State was facing a large deficit for 1911. He advised the abolition of several unnecessary boards and commissions, the removal of useless employees, and a careful scrutiny of every demand for appropriation. In particular, he advised the abolition of the Advisory Board of Consulting Engineers in charge of the construction of the barge canal, of the Highway Commission, of the State Board of Parole, and the Board of State Fair Managers. He also advised the consolidation of the Forest, Fish and Game Commission, and the State Water Supply Commission. Of especial interest was his recommendation for the adoption of a system of State-wide nominations "which shall insure to the people the right to choose members of political committees and nominate candidates for public office." His recommendations included the adoption of an election law which would permit the name of any candidate to appear in but one place upon the ballot. He urged enlargement of the scope of the law regulating employers' liability to workmen, and more stringent restrictions on child labor. He declared in favor of the proposed amendment to the federal Con-

stitution permitting the imposition of an income tax, thereby taking a stand opposed to that of Governor Hughes in 1910. He favored the passage of legislation calling on Congress for the adoption of the parcels post and for a resolution to Congress to submit a constitutional amendment providing for the popular election of United States senators.

On March 31, after a deadlock extending over ten weeks, James A. O'Gorman, justice of the New York Supreme Court, was elected United States senator to succeed Chauncey M. Depew. On the final vote Mr. O'Gorman received 112 ballots, while 97 were necessary for a choice. The election of Senator O'Gorman marked one of the most stubborn contests ever known in the New York legislature. At its beginning two candidates for the senatorship were conspicuous. These were Edward M. Shepard (q. v.) of Brooklyn and William F. Sheehan of Buffalo. Mr. Shepard was the candidate of the conservative element, of which he was the most conspicuous type. Mr. Sheehan was the avowed candidate of Tammany Hall, which controlled a large proportion of the legislators either directly or indirectly. A number of the Democratic legislators sufficient to prevent the necessary number of affirmative votes, bound themselves not to vote in favor of the election of Mr. Sheehan, but not actually binding themselves to any candidate. After a number of futile ballots, Mr. Shepard withdrew, leaving Mr. Sheehan the only strong candidate in the field. A number of others received at various times a small number of votes. In spite of the pressure brought to bear upon them, the insurgent Democrats refused to vote for Mr. Sheehan and he in turn refused to withdraw. Finally, Tammany Hall found it necessary to abandon Mr. Sheehan as a candidate, and after a series of conferences between the insurgents and the regular Democrats, it was agreed that Mr. O'Gorman should be the candidate upon whom all should unite. The result was a compromise. Justice O'Gorman has throughout his political life been identified with Tammany Hall and has held more than one office in that organization. On the other hand he served for twelve years as justice of the State Supreme Court and was known as an able and an impartial jurist. A feature of the campaign was the refusal of Governor Dix to commit himself to either faction, on the ground that it was the function of the legislature to elect a senator and that he could take no active part in such an election.

The most important measures passed by the legislature were those amending the election law of the State, and measures relating to direct elections. The election law, called the Levy law, after the representative who introduced it into the Assembly, provides that only registered and enrolled voters may nominate candidates independently by petition and that the name of a single candidate shall appear only once on the official ballot. In communities of less than 5000 the bill permits the names of voters who actually voted at the preceding election to be kept on the registry rolls by the election officials, but those who did not vote at the previous election must register personally. In order to prevent practically compulsory straight party voting in presidential years, it is provided that presidential electors shall be voted for separately from the State ticket. Four uniform days of

registration are provided throughout the State. Bipartisan boards of election are established in every county. These are to include two or four members. In New York City the chairmen of the two party committees, the New York and Kings county committees, are to name the members of the election board.

The election law as passed by the legislature contained two amendments which were declared unconstitutional by the Court of Appeals. The constitution of the State provides that in communities of less than 5000 inhabitants, voters shall not be required to register personally on the first registration day. The legislature sought to compel all persons whose names were not on the last year's election lists to register personally. But the court held that in this provision the legislature exceeded its power. The other amendment provided that the candidate's name should appear only once on the ballot. The object of this amendment was to prevent fusion tickets in New York City. The court held that this was discriminating between electors as to the opportunities and facilities afforded for voting for candidates of their choice and hence was unconstitutional.

The bill for direct election was a compromise measure and did not satisfy either the advocates or opponents of such legislation. The measure continues with the State convention the power to nominate the State ticket, but establishes the direct primary in the congressional, judicial, State senatorial, and assembly districts, and for county and city officers. In the primary elections only enrolled party voters can participate. Large powers are retained by the State machines. One of the features of the bill is the preference given the regular organization ticket. Candidates on this ticket have the preferential position on the ballot and the use of the party emblem is permitted to cover these candidates' names, as well as the names for committeeman. It is further provided that party funds may be used by committees to nominate their own members as well as to secure the naming of their candidates for office and for getting out the vote for the regular ticket at the primary.

The legislature took a recess on July 21 until September 6. In addition to the measures mentioned above, important action was taken on other proposed legislation. A bill designed to rehabilitate race tracks was defeated. Previous to the recess Governor Dix sent a message to the legislature in which he recommended that the State return to the direct tax and proposed other measures for increasing the income of the State.

A committee appointed in 1910 to inquire into the alleged charges of bribery in connection with the passage of the Hart-Agnew bill of 1908 reported on February 1. The committee failed in general to substantiate any of the charges made, but recommendations were submitted that the penal law of the State be changed so as to compel members to report attempts at improper influence. The committee also drew attention to abuses in the fire insurance business and recommended remedies. Among the defeated measures was the proposed charter for the city of New York (see below). A woman suffrage bill was also defeated.

ELECTIONS. On February 15 elections were held in the smaller towns of the State. The chief interest centred in the question of liquor regulation. Richfield Springs and Norwich

voted for license and nine towns in Chenango county voted for no license. The elections on November 7 resulted throughout the State in general in Republican successes. The Republicans elected 28 more than a majority of the members of the State Assembly which convened in January, 1912. Of 150 members of the Assembly the Republicans have 102, the Democrats 47, and the Socialists 1. In 1911 the Democrats had 87 votes in the Assembly and the Republicans 63. One of the most interesting results of the election was the success of the Socialist party in Schenectady, where the Rev. Dr. George R. Lunn was elected mayor by a plurality of 2052, and the entire Socialist ticket with the exception of the candidate for city judge, was successful. Dr. Lunn was for several years pastor of the First Dutch Reformed Church in Schenectady, but resigned on account of his Socialistic tendencies.

NEW YORK CITY. The chief public interest during the year centred in the attempts to bring about the solution of the problem of additional subways (see TUNNELS). A proposed new city charter was defeated in the legislature in October. This charter contained provisions for radical changes in the city government. It had the support of Mayor Gaynor, but the public sentiment in general was opposed to it. The charter gave additional powers to the mayor, provided for a paid school board, and took away certain powers in the financial administration of the city which belonged to the controller.

On September 26 Governor Dix removed from office Lawrence J. Gresser, president of the Borough of Queens, as a result of the examination made into the charges against him by a commissioner especially appointed by the governor. Morris P. Connolly, a municipal justice, was elected president of the borough to succeed Mr. Gresser. The city budget for 1912, as approved by the Board of Estimate in New York, amounted to about \$189,000,000.

The city elections held on November 7 were for judicial candidates and for members of the legislature. The most notable result in New York City was the success of the Fusion ticket in Brooklyn, a combination of Republicans and Independents elected the entire county ticket by pluralities of 8000 to 11,000.

OTHER EVENTS. On March 24 the Court of Appeals declared unconstitutional the State Workmen's Compensation act. (See WORKINGMEN'S INSURANCE.) On March 29 the State Capitol at Albany was partially destroyed by fire. Many valuable historical documents in the State Library were burned.

LEGISLATION. In addition to the measures noted above, the legislature of 1911 passed a law reapportioning the congressional districts of the State; measures amending the penal law in relation to false weights and measures; an act reducing from 5 to 3 years the term of enlistment of men in the national guard or naval militia; a measure establishing at Buffalo a State institute for the study of malignant diseases; an amendment to the penal law in relation to the sale and carrying of dangerous weapons; measures creating a commission to investigate the conditions under which manufacturing is carried on in cities of the first and second class (New York and Buffalo); an act establishing a commission of eleven members to investigate the prices, purity, production, distribution,

and consumption of food and foodstuffs and of farm and dairy products.

STATE OFFICERS, 1911: Governor, John A. Dix; Lieutenant-Governor, Thomas F. Conway; Secretary of State, Edward Lazansky; Comptroller, William Schmer; State Treasurer, John J. Kennedy; Attorney-General, Thomas Carmody; State Engineer and Surveyor, John A. Bensel; Adjutant-General, William Verbeck; Superintendent of Insurance, William H. Hotchkiss; Superintendent of Banking Department, Orion H. Cheney, succeeded by George C. Van Tuyl, Jr.; Superintendent of State Prisons, Cornelius V. Collins, succeeded by Joseph F. Scott; Superintendent of Public Works, Charles E. Treman; President State Commission in Lunacy, Albert Warren Ferris; Chairman Public Service Commission, First District, William C. Wilcox; Second District, Frank W. Stevens; President, State Board of Charities, William Rhinelander Stewart; Commissioner of Education, Andrew S. Draper; Chairman Conservation Commission, George E. Van Kennan; State Architect, Franklin B. Ware.

NEW YORK CITY. See **ARCHITECTURE; NEW YORK.**

NEW YORK COMMISSION ON POPULATION. See **POPULATION, CONGESTION OF.**

NEW YORK PHILHARMONIC SOCIETY. See **MUSIC.**

NEW YORK PUBLIC LIBRARY. See **LIBRARY PROGRESS.**

NEW YORK STATE LIBRARY. See **LIBRARY PROGRESS.**

NEW YORK UNIVERSITY. The number of students enrolled in all departments of the university in 1911-12 was 4044. The faculty numbered 381. The most noteworthy event in the history of the university during the year was the inauguration of Dr. Elmer Ellsworth Brown (q. v.) as chancellor on November 9. Among the noteworthy changes in educational policy was the uniform requirement for a three-year course of twelve hours per week in all classes for the LL. B. degree. Beginning with the class entering in October, 1912, the university and Bellevue Hospital Medical College will require for entrance one year of college work in addition to high school graduation. This year must include courses in chemistry, physics, biology, and modern languages. The productive funds of the university amounted in 1911 to \$1,200,000 and the annual income to \$50,000. See also **UNIVERSITIES AND COLLEGES.**

NEW YORK ZOOLOGICAL PARK. See **ZOOLOGICAL PARK, NEW YORK.**

NEW YORK ZOOLOGICAL SOCIETY. The New York Zoological Society was incorporated in 1895 under a special charter granted by the legislature of the State of New York. The objects of the society are: A public zoological park; the preservation of our native animals and the promotion of zoölogy. Control of the Zoological Park, which comprises the southern part of Bronx Park, 264 acres in extent, was assumed by the society in July, 1898. In area, elaborateness of structures, and number of specimens, it is the largest and most highly developed zoölogical park in the world. The city of New York provides an annual maintenance fund. The animal collections, which numbered on January 1, 1912, 1251 species, 4838 specimens, are provided by the society.

The attendance during 1911 was 1,481,905, and the total attendance from 1899 to 1911 in-

clusive was 13,926,819. Record attendance for one day, May 28, 1911, was 40,724. The park is open every day of the week the entire year, free, except Monday and Thursday of each week. When either Monday or Thursday is a legal holiday there is no admission charged upon such days.

The society controls and manages the Aquarium in Battery Park, and through its efforts has greatly increased the interest in that institution. Plans are now being developed, for which the board of estimate and apportionment has appropriated money, to greatly enlarge the Aquarium; making additional exhibition tanks and many educational features, such as a biological laboratory, lecture hall, etc. When these improvements are completed the Aquarium will be by far the largest and most elaborate institution of its kind in the world. Attendance at New York Aquarium for 1911, 2,011,544. Average daily attendance, 5511. The society is actively engaged in the protection of animal life throughout the world, particularly the preservation of the native animals. It has been instrumental in establishing a herd of bison in southwestern Oklahoma, presenting to the United States government fifteen bison from the large collection in the Zoölogical Park, as the nucleus of a herd established in the Wichita Forest and Game Preserve. During 1912 the eagle and vulture aviary and a house for wild equines will be completed; a series of ten new bear dens is all ready for occupancy. The society contemplates a hospital and quarantine for the proper care of wild animals; pathological laboratory for the study of comparative pathology and anatomy; the Fordham entrance, an elaborate stone structure; an atelier for modeling and mounting specimens, and a house for anthropoid apes.

The membership of the society in 1911 was nearly 2000 of all classes. The officers of the society are: Henry Fairfield Osborn, president; Samuel Thorne and John L. Cadwalader, vice-presidents; Madison Grant, secretary and chairman of the executive committee; and Percy R. Pyne, treasurer. Dr. William T. Hornaday is director of the Zoölogical Park and Dr. Charles H. Townsend of the Aquarium.

NEW ZEALAND, DOMINION OF. A group of islands in the South Pacific; an autonomous dependency of Great Britain. Capital, Wellington.

AREA, POPULATION, ETC. Total area, 104,751 sq. miles (North Island, 44,468; South, 58,525; Stewart, 665). Population (census of April 2, 1911), 1,008,468 Europeans (53,910 males, 476,558 females); Maoris, 49,884 (26,475 males 23,369 females), chiefly in North Island. Total population, including 12,340 (6224 males, 6116 females) in the Cook and other Pacific islands, 1,070,652. Births (1909), 26,524; deaths, 8959; marriages, 8094; immigrants, 38,650; emigrants, 33,931. Population of chief towns, with suburbs (1911): Auckland, 102,676; Christchurch, 80,193; Wellington, 70,729; Dunedin, 64,237.

Public primary schools (1909), 2057, with 4310 teachers and 152,416 pupils. Private schools about 300, with about 17,900 pupils; Maori village schools, 94. There are secondary and collegiate as well as special schools. Total expenditure for public education in 1909-10, £1,166,000.

PRODUCTION. Agriculture and stock-raising occupied, in 1906, 96,957 persons. Land under

crop and broken in 1910, 1,914,487 acres, besides 13,600,000 in sown grasses, and 20,000,000 acres under forest. Area sown to wheat in 1909, 311,000 acres (yield, 8,783,000 bu.); oats, 377,000 acres (13,527,000 bu.); barley, 41,500 (1,228,000). Livestock (1910): 404,284 horses, 2,020,171 cattle, 24,269,620 sheep, and 245,092 swine (1909). Wool clip (1909), 194,886,524 pounds (of which exported, 189,683,703). Timber cut (1909), 413,868,919 feet. Kauri gum produced, 8250 tons (£552,698). Mineral production (1909): 506,371 oz. gold (value, £2,006,900), 1,911,247 tons coal (£1,038,742), 1,813,830 oz. silver (£180,872). Other industries are meat freezing and preserving, tanning, wool scouring, etc.; there are saw mills, grist mills, butter and cheese factories, and iron and brass works.

COMMERCE, FINANCE, ETC. Trade and finance statistics are shown in the following table for three successive years:

	1908	1909	1910
Imps. (total) . . .	£17,471,284	£15,674,719	£17,051,583
Exps. (dom.) . . .	15,894,530	19,462,936	21,994,163
Exps. (total) . . .	16,317,494	19,661,996	22,180,209
Revenue* . . .	9,063,989	9,001,185	9,238,917
Expenditure* . . .	8,213,965	8,785,513	8,990,922

* Fiscal years 1907-8, 1908-9, 1909-10.

Principal imports (1909): Clothing and materials therefor, £3,491,526; iron and steel goods, machinery, etc., £2,900,372; paper books, etc., £630,013; sugar, £613,950; alcoholic beverages, £408,552; tobacco and cigars, £353,612; oils, £329,289; specie, £857,257. Exports: Wool, £6,305,888 (1910, £8,308,410); frozen meat, £3,601,093 (1910, £3,850,777); butter and cheese, £2,744,770 (1910, £3,007,348); gold, £2,007,043 (1910, £1,896,453); hides, skins, etc., £1,022,778; grain, flour, etc., £834,058; tallow, £648,452. Great Britain furnished imports and received exports valued at £9,287,786 and £16,193,188 respectively; Australia, £2,764,210 and £1,918,115; United States, £1,643,937 and £684,810; Pacific islands, £654,016 and £258,164. Vessels entered (exclusive of coasting) 1909, 605, of 1,263,935 tons; cleared, 596, of 1,253,878; 1910, 609 (1,389,031 tons) and 588 (1,367,207). Merchant marine: 589 vessels, of 150,840 tons net (steamers, 327, of 110,677).

The principal sources of revenue are customs, railways, and stamps. The main items of expenditure, public debt charges, railways, education, and posts and telegraphs. Revenue for 1910-11, £10,297,023; expenditure, £9,343,106. Public debt, March 31, 1911, £81,078,122; accrued sinking fund, £3,380,542. Total railways in operation March 31, 1911, 2753 miles of government, and 29 miles of private lines. The total new construction opened to traffic amounted to but 45 miles on seven small lines, but a large mileage under construction was reported. Government telegraph lines (1910), 10,901 miles; wires, 34,788.

GOVERNMENT. The executive authority is vested in a governor (1911, Sir John Poynder Dickson-Poynder, appointed 1910 and created first Baron Islington the same year), appointed by the crown and acting through a responsible ministry. A parliament of two houses, elected triennially by universal adult suffrage, exercises the legislative power. Prime minister in 1911, Sir Joseph George Ward.

Attached to New Zealand are the AUCKLAND ISLANDS (uninhabited), CHATEAU ISLANDS (375 sq. miles, about 400 population), KERMADEC

ISLANDS (15 sq. miles), and COOK ISLANDS and others (upwards of 280 sq. miles).

HISTORY. Parliament, which was opened on July 27 by Lord Islington, closed in October without enacting any measures of especial importance. The electoral campaign which followed aroused much interest, as a poll under the licensing act of 1910 was to be taken at the same time that the election was held for members of the House of Representatives. The licensing act provides that if 60 per cent. of the electors vote for prohibition, intoxicating liquor shall cease to be sold or manufactured in or imported into New Zealand. The elections in December showed great gains for the opposition and especially for the Labor party. See AGRICULTURE.

NICARAGUA. A Central American republic between Honduras and Costa Rica. The capital is Managua.

AREA AND POPULATION. The estimated area is 49,552 sq. miles. The population is estimated at 600,000, mostly Indians and mestizos. There are very few persons of unmixed white blood. For 1908 there were reported 1261 marriages (that is, 2522 persons married), 23,828 births, and 9598 deaths. The larger towns, with estimated population, are: León, 63,000; Managua, 40,000; Granada, 25,000; Matagalpa, 16,000; Masaya and Bluefields, 15,000 each; Chinandega, 13,000. The number of elementary schools is reported at 356. There are several institutions for secondary education. Roman Catholicism is the prevailing form of religion.

INDUSTRIES AND COMMERCE. The people are engaged chiefly in agriculture. The forests contain cabinet and other valuable woods, and these are exploited to some extent. The mineral resources are considerable, but mining is almost restricted to gold. There are a few manufacturing industries, confined practically to articles of domestic consumption, as boots and shoes, furniture, sugar, rum, beer, candles, cigars, soap, etc. The principal crops are coffee, bananas, and sugar-cane; there are also produced cacao, corn, beans, and tobacco. The coffee crop for 1909-10 was estimated at 22,300,000 pounds.

Import and export values are reported as follows: 1907, \$3,224,173 and \$3,363,522 respectively; 1908, \$2,958,878 and \$3,647,984; 1909, \$2,583,257 and \$3,989,428. Figures later than for 1909 are not available. The leading imports are cotton textiles, flour, and provisions. The principal exports in 1909 were: Coffee, \$1,546,919; gold, \$1,037,892; woods, \$415,575; rubber, \$229,871; sugar, \$182,123; bananas, \$163,828; hides, \$146,253. In 1909 imports from and exports to the United States were valued at \$1,341,892 and \$1,677,010 respectively; Great Britain, \$625,668 and \$843,453; Germany, \$286,408 and \$423,579; France, \$131,826 and \$776,429.

COMMUNICATIONS. There is one railway line, which, with its branches, has a total length of 171 miles. It connects the Pacific port Corinto with Chinandega, León, Managua, Masaya, Granada (on Lake Nicaragua), and Diriamba. Steamer traffic is carried on between Granada and San Juan del Norte, on the Caribbean coast. Telegraph, 130 offices, with 3637 miles of wire; post offices, 135.

FINANCE. Revenue and expenditure, in paper pesos, for 1907, 10,219,248 and 10,286,519 respectively; 1908, 13,119,503 and 12,502,592. For

1910, the revenue was 15,182,852 pesos, and the ordinary expenditure, 12,052,848; extraordinary expenditure on account of the revolution amounted to 22,520,279 pesos. The paper peso has been worth about 16 cents, but in 1910 it was only about 10 cents. Of the revenue in 1910, 9,793,717 pesos was derived from customs, 1,427,095 from liquor taxes, and 1,319,025 from tobacco taxes. On June 8, 1911, a convention between Nicaragua and the United States was signed at Washington, providing for the refunding of the foreign debt, the reform of the monetary system, and railway construction, by means of a loan to be made by American bankers and secured by a guarantee of 50 per cent. of the customs duties. The convention was ratified by the Nicaraguan congress on October 9, but was pending in the American Senate at the close of the year. It was expected that the loan would amount to about \$15,000,000.

ARMY. The president of the republic of Nicaragua is commander-in-chief of the army, which is maintained at varying strength, depending upon political conditions. It is formed by obligatory service on the part of every male inhabitant of the republic between the ages of seventeen and fifty-five, and active service normally is restricted to one year. The army is maintained at a nominal strength of 3500 men in time of peace, though often this number falls as low as 2000. In time of war there may be available as many as 40,000 men for military service.

GOVERNMENT. The constitution of March 30, 1905, was suspended as a result of the revolution of 1910, and in the latter part of that year and in 1911 the country was administered under a law issued September 15, 1910, by Gen. Juan J. Estrada, provisional president. As leader of the eventually successful faction in the civil war supervening upon the resignation of President José Santos Zelaya December 16, 1909, General Estrada assumed the duties of provisional president on August 29, 1910. On December 31 a national congress chose him president for two years and Adolfo Díaz vice-president. Estrada resigned May 11, 1911, and was succeeded by Díaz. On October 7, 1911, the congress elected Gen. Luis Mena president for four years beginning January 1, 1913. In January diplomatic relations with the United States were resumed, Mr. Elliott Northcote having been appointed United States minister. See **UNITED STATES, Foreign Relations.** See also **MADRIZ, JOSÉ.**

NICHOLSON, AUGUST S. An American soldier, died November 7, 1911. He was born in 1830. He was the youngest officer ever appointed to the service of either the army or the navy. He served in the Mexican War and was brevetted first lieutenant for gallant conduct in the storming of Chapultepec and the capture of the City of Mexico, September 13, 1847. He was engaged in special duty at Fort Washington, remaining there until 1861, when he was put in command of one hundred marines in the expedition under Admiral Paulding which destroyed the Norfolk Navy Yards. He was appointed adjutant and inspector, with the rank of major, on May 6, 1861, and was on duty with the battalion of marines that was engaged in the battle of Bull Run. On the day following this battle he returned to headquarters and resumed his duties as adjutant and inspector.

He was retired on May 1, 1894, after forty-seven years of honorable service.

NIGER, MILITARY TERRITORY OF THE. A French West African possession, with an area of 1,500,000 sq. kilometers (579,000 sq. miles). Recently estimated population, 1,147,024 (195 French). Schools (1909): 22 official, with 313 pupils. Chief town, Niamey. Revenue in 1909, 1,758,636 francs; expenditure, 1,629,189. The lieutenant-governor of Upper Senegal and Niger (q. v.) administers the territory. See **FRENCH WEST AFRICA.**

NIGERIA, NORTHERN. See **NORTHERN NIGERIA.**

NIGER VALLEY, EXPLORATIONS IN. See **EXPLORATION.**

NIGHT MESSENGERS. See **CHILD LABOR.**

NILE VALLEY. See **EXPLORATION.**

NILE VALLEY, IRRIGATION OF. See **IRRIGATION.**

NIPA PALM. See **CHEMISTRY, INDUSTRIAL.**

NITRATE OF SODA. See **FERTILIZERS.**

NITROGEN. See **CHEMISTRY, and FERTILIZERS.**

NOBEL PRIZES. The Nobel prizes are awarded annually from a fund of \$8,400,000, left by the will of Dr. Alfred Bernhard Nobel. By this bequest the interest from this fund is to be distributed annually to "those persons who shall have contributed most materially to benefit mankind during the year immediately preceding." Prizes are distributed in accordance with statutes signed by King Oscar of Sweden on January 29, 1900. The value of each prize is approximately \$40,000. They include work in physics, chemistry, medicine, literature, and for the advancement of peace. The prizes awarded since the foundation of the fund, including those of 1911, are given in the table below:

Name	Year	Nationality
Physics		
Wilhelm Konrad Röntgen	1901	German
{ H. A. Lorentz	1902	Dutch
{ Pieter Zeeman	1902	Dutch
{ Henri Becquerel	1903	French
{ Pierre Curie	1903	French
{ Marie Sklodowska Curie	1903	Polish
Lord Rayleigh	1904	English
Philipp Lenard	1905	German
Joseph J. Thomson	1906	English
Albert A. Michelson	1907	American
Gabriel Lippmann	1908	French
{ William Marconi	1909	Italian
{ Ferdinand K. Braun	1909	German
Johannes D. van der Waals	1910	Dutch
Wilhelm Wien	1911	German
Chemistry		
Jacobus H. van't Hoff	1901	Dutch
Emil Fischer	1902	German
Svante Arrhenius	1903	Swedish
Sir William Ramsay	1904	English
Adolph von Baeyer	1905	German
Henri Moissan	1906	French
Eduard Buchner	1907	German
Ernest Rutherford	1908	English
Wilhelm Ostwald	1909	German
Otto Wallach	1910	German
Marie S. Curie	1911	Polish
Medicine		
Emil von Behring	1901	German
Ronald Ross	1902	English
Niels R. Finsen	1903	Danish
Ivan Petrovich Pavlov	1904	Russian
Robert Koch	1905	German
{ Camillo Golgi	1906	Italian
{ Santiago Ramón y Cajal	1906	Spanish
Charles Alphonse Laveran	1907	French
{ Paul Ehrlich	1908	German
{ Elie Metchnikoff	1908	Russian
Theodor Kocher	1909	Swiss
Albrecht Kossel	1910	German
Allvar Gullstrand	1911	Swedish

Name (cont.)	Year	Nationality
Literature		
Armand Sully-Prudhomme.....	1901	French
Theodor Mommsen.....	1902	German
Björnsterne Björnson.....	1903	Norwegian
Frédéric Mistral.....	1904	French
José Echegaray.....	1904	Spanish
Henryk Sienkiewicz.....	1905	Polish
Giosuè Carducci.....	1906	Italian
Rudyard Kipling.....	1907	English
Rudolf Eucken.....	1908	German
Selma Lagerlöf.....	1909	Swedish
Paul J. L. Heyse.....	1910	German
Maurice Maeterlinck.....	1911	Belgian
Peace		
Henri Dunant.....	1901	Swiss
Frédéric Passy.....	1901	French
Elie Ducommun.....	1902	Swiss
Albert Gobat.....	1902	Swiss
William R. Cremer.....	1903	English
Institute of International Law.....	1904	Intern'l
Bertha von Suttner.....	1905	Austrian
Theodore Roosevelt.....	1906	American
Louis Renault.....	1907	French
Ernesto T. Moneta.....	1907	Italian
K. F. Arnoldson.....	1908	Swedish
M. F. Bajer.....	1908	Danish
d'Estournelles de Constant.....	1909	French
Auguste M. Beernaert.....	1909	Belgian
International Permanent Peace Bureau.....	1910	Intern'l
T. M. C. Asser.....	1911	Dutch
Alfred Fried.....	1911	Austrian

Of the recipients of the Nobel prizes in 1911, M. Maeterlinck and Madame Curie are too well known to need comment. The others are less familiar. Dr. Wien is a member of the faculty of the University of Würzburg. He was born in 1864 and studied at Göttingen, Heidelberg, and Berlin. He became assistant to Helmholtz and later held professorships at Aachen and Giessen. A large part of the recent knowledge of the radiation of light and electricity is due to him. He is the discoverer of the Wien's law, that the wave lengths of maximum energy vary universally with the temperature. Professor Gullstrand holds the chair of ophthalmology at the University of Upsala. His chief contributions have been to mathematical optics, in which he is an authority. He has published many profound works on ophthalmology. Dr. Asser, one of the recipients of the peace prize, was born in 1838 and served as the Dutch representative in the Hague Conference of 1890 and the International Court of Arbitration, 1900. He is the author of several important works on international law and is founder of the Institute of International Law, which received the Nobel prize in 1904. Alfred Fried was born in Vienna in 1864, but has spent most of his life in Berlin, where he founded the German Peace Society. He is editor of the Vienna *Friedenswarte*.

NORTH ADAMS. See MASSACHUSETTS.

NORTH CAROLINA. POPULATION. The Thirteenth Census showed a population in the State in 1910 of 2,206,287, compared with 1,893,810 in 1900. The principal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Charlotte, 34,014 (18,891); Wilmington, 25,748 (20,976); Raleigh, 19,218 (13,643); Asheville, 18,762 (14,694); Durham, 18,241 (6,679).

MINERAL PRODUCTION. A small quantity of gold and silver is produced in the State. The gold output in 1910 was 1601 fine ounces, valued at \$33,100. The silver output was 7900 fine ounces, valued at \$4300. In 1911, according to the preliminary estimates of the Director of the Mint, the production of gold was 3710 fine ounces, valued at \$76,693, and the production of silver was 2227 fine ounces, valued at \$1225.

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 253,725, compared with 224,637 in 1900. The land in farms was 22,439,129 acres, compared with 22,749,356 acres in 1900. The improved land in farms was 8,813,056 acres, compared with 8,327,106 acres in 1900. The average acreage per farm is 88.4, compared with 101.3 in 1900. The total value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$537,716,210 in 1910, compared with \$233,834,603 in 1900. The average value of all property per farm in 1910 was \$2119, compared with \$1041 in 1900. The average value of land per acre was \$15.29 (\$6.24 in 1900). Of the farms in this State 146,438 were operated by owners and managers and 107,287 by tenants. Of the farms operated by owners, those free from mortgage numbered 117,028; mortgaged, 26,642. The native white farmers numbered 187,657; foreign-born white, 412; negro and other non-white, 65,656. The value of the various kinds of domestic animals and poultry in 1910 was \$62,649,984, compared with \$30,106,173 in 1900. The cattle numbered 700,861, valued at \$12,550,054; horses, 166,151, valued at \$18,428,134; mules, 174,711, valued at \$23,669,687; swine, 1,227,625, valued at \$4,628,446; sheep, 214,473, valued at \$559,217. Poultry of all kinds numbered 5,053,870, valued at \$2,212,570. The acreage, production and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn.....1911	2,700,000	49,680,000	\$40,738,000
.....1910	2,650,000	49,290,000	37,460,000
Wheat.....1911	626,000	6,636,000	6,769,000
.....1910	598,000	6,817,000	7,499,000
Oats.....1911	219,000	3,614,000	2,277,000
.....1910	221,000	4,022,000	2,413,000
Rye.....1911	47,000	470,000	470,000
.....1910	50,000	500,000	505,000
Rice.....1911	500	13,000	10,000
.....1910	1,000	27,000	20,000
Potatoes..1911	31,000	1,488,000	1,607,000
.....1910	33,000	2,337,000	2,144,000
Hay.....1911	161,000	a 169,000	2,873,000
.....1910	175,000	262,000	3,825,000
Tobacco..1911	140,000	b99,400,000	11,530,400
.....1910	200,000	120,000,000	12,720,000
Cotton...1911		c 935,000	

a Tons. b Pounds. c Bales.

The State produces copper in small quantity. The output in 1910 was 181,263 pounds, as compared with 120,451 pounds in 1909. The output is chiefly from the Virgilina district in Granville and Person counties. The iron ore mined in the State in 1910 amounted to 65,278 tons, valued at \$114,237, as compared with 61,150 tons, valued at \$107,013 in 1909. The production of gold in the State in 1910 was 3291 fine ounces, valued at \$68,045. There were produced 9053 fine ounces of silver, valued at \$4620. North Carolina is first among the Eastern States in the production of gold.

EDUCATION. The total school population in 1910 was 735,168. Of these 497,077 were whites and 238,091 were colored. The total enrollment in 1910 was 520,404, of whom 360,121 were white and 160,283 were colored. The total number of teachers employed in 1910 was 11,162. Of these, 8369 were white and 2793 were colored. The amount paid to all teachers was \$1,951,153. The average annual amount for each white teacher was \$174.80, and the average annual

amount paid to each colored teacher was \$113.52.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions in the State, with their population in 1911, are as follows:

Hospital at Morganton, 1544; hospital at Raleigh, 908; hospital at Goldsboro, 951; Dangerous Insane Department (in penitentiary grounds), Raleigh, 57; School for the Feeble-minded, Kinston, not opened; School for the White Deaf, Morganton, 305; School for White Blind, Raleigh, 241; School for Colored Blind and Deaf, Raleigh, 214; Soldiers' Home (Confederate), Raleigh, 194; Oxford Orphanage for White Children (under Masons, aided by the State), Oxford, 389; Oxford Orphanage for Colored Children (chiefly supported by the State), 231; Stonewall Jackson Training School (Reform School), Concord, 60; North Carolina Tuberculosis Sanatorium, Aberdeen, 66; Epileptic Colony at State Hospital, Raleigh, State's Prison, Raleigh, 978.

During the year \$76,500 was appropriated for improvements at several of the institutions. The State's prison more than supports itself. Receipts for the year were \$206,037.27, and expenditures were \$181,196.18. Some of the expenditure was for improvements on the State farm.

The most important act of the legislature of 1911 was the establishment of a school for the feeble-minded. A bond issue of \$60,000 was made for this purpose. The site has been chosen at Kinston, one thousand acres of land, light, and water for five years being furnished by that town. Dr. Ira M. Hardy is superintendent. This school will take children and adults.

A law was passed prohibiting the placing of stripes on misdemeanants. Commutation time increased for the State prison inmates. There was no change in the policy of administering these institutions.

STATE OFFICERS. Governor, W. W. Kitchin; Lieutenant-Governor, W. C. Newland; Secretary of State, J. B. Grimes; Treasurer, B. R. Lacy; Auditor, W. P. Wood; Attorney-General, T. W. Bickett; Superintendent of Education, J. Y. Joyner; Commissioner of Agriculture, W. A. Graham; Commissioner of Insurance, J. R. Young; Adjutant-General, R. L. Leinster—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Walter Clark. Justices, George H. Brown, William A. Hoke, William R. Allen, P. D. Walker. Clerk, Thomas S. Keenan—all Democrats.

STATE LEGISLATURE, 1911: Senate, Democrats, 43; Republicans, 7; House, Democrats, 90; Republicans, 20; joint ballot, Democrats, 142; Republicans, 27; Democratic majority, Senate, 36; House, 79; joint ballot, 115.

The representatives in Congress will be found in the article UNITED STATES, Congress.

NORTH CAROLINA, UNIVERSITY OF. An institution of higher learning at Chapel Hill, N. C., founded in 1789. The students enrolled in the various departments of the university in 1911-12 numbered 787. The faculty numbered 84. There were no notable changes among the members of the faculty during the year. The invested funds of the university amounted to \$215,000, and the income to \$172,000. During the year there were erected medical laboratories at a cost of \$50,000, a dormitory at a cost of \$50,000, and a school of education at a cost of \$40,000. The library contains about 60,000 vol-

umes. The president is Francis P. Venable, Ph. D.

NORTHCOTE, Sir HENRY STAFFORD NORTHCOTE, first Baron. An English nobleman and administrator, died September 29, 1911. He was born in 1846, the second son of the first Earl of Iddlesleigh, who was, before his promotion to the peerage, Sir Stafford Northcote. He was educated at Eton, and Merton College, Oxford. Following his graduation from the latter he entered the foreign office as a clerk in 1868. His father, in 1871, went to Washington as one of the British members of the general commission to which was referred the Alabama question, and other issues then in dispute between Great Britain and the United States. Young Northcote accompanied him and subsequently visited Canada in 1873. In 1876 he went with Lord Salisbury as private secretary to a conference which sought to arrange for the pacification of the Turkish provinces. At the general election of 1880 he was returned to Parliament for Exeter and he represented that city for nineteen years. After the death of his father in 1887 he was created a baronet, but he did not again hold a parliamentary office. He held several administrative offices, however, and in 1899 he was made governor of Bombay. He was elevated to the peerage under the title of Baron Northcote of Exeter. His administration of the governorship of Bombay was very successful. During his administration occurred several of the great famines which have devastated India in recent years. He took means to alleviate the conditions and was especially praised for his efforts to preserve and increase the herds of cattle which were rapidly disappearing. In 1903 he resigned his office in Bombay after a tenure lasting three years and nine months, in order to become third governor-general of the Australian commonwealth. He held this post for the full term of five years, beginning in 1904. He was obliged to face many ministerial crises during his administration, but he enjoyed the confidence of the leaders of all parties to an unusual degree. He played no small part in producing a marked growth in the desire for greater imperial unity, which became so conspicuous in Australia during the first decade of the twentieth century. He was eager to promote the development of the commonwealth and traveled widely in order to inform himself at first hand of its needs. Following his return to England he took his seat in the House of Lords in 1909. He was rarely heard in debate, though he contributed useful speeches to the discussion on South African union and the Asiatic immigration question.

NORTH DAKOTA. POPULATION. The Thirteenth Census showed a population in the State in 1910 of 577,056, compared with 319,146 in 1900. The principal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Fargo, 14,331 (9589); Grand Forks, 12,478 (7652); Minot, 6188 (1277); Bismarck, 5443 (3319).

MINERAL PRODUCTION. The coal production in the State in 1910 amounted to 399,041 short tons, valued at \$595,139. This is a slight decrease from the production of 1909. All the coal produced in the State is lignite and does not enter into competition with the coals of other States except as these are brought into the North Dakota markets.

AGRICULTURE. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	290,000	7,250,000	\$4,350,000
1910	210,000	2,940,000	1,705,000
Wheat .....1911	9,150,000	73,200,000	65,148,000
1910	7,700,000	38,500,000	34,650,000
Oats .....1911	2,180,000	51,230,000	21,004,000
1910	2,165,000	15,155,000	5,607,000
Rye .....1911	36,000	598,000	454,000
1910	30,000	255,000	161,000
Potatoes ..1911	42,000	5,040,000	2,772,000
1910	40,000	1,640,000	1,492,000
Hay .....1911	192,000	2,211,000	1,477,000
1910	188,000	103,000	783,000

a Tons.

EDUCATION. The enrollment in the schools of the State in 1910 was 135,203. Of these 70,018 were boys and 65,095 were girls. The average daily attendance was 88,139. The number of male teachers employed during the year was 1440, and female teachers, 5118. The average monthly salary of male teachers was \$58.41 and of female teachers, \$49.28. The average salary for both was \$50.28.

POLITICS AND GOVERNMENT

The year was uneventful in the political history of the State. The legislature met and passed several important measures. These are noted in the paragraph *Legislation*, below. In January the legislature reelected Porter J. McCumber United States senator, and chose A. J. Gronna, formerly a congressman, to serve for the unexpired term of Senator Johnson, who died in the latter part of 1909. Fountain L. Thompson was first appointed to fill this vacancy caused by Senator Johnson's death, after serving a few months he resigned and the governor appointed W. E. Purcell, who served until the legislature elected Senator Gronna, who had been nominated for the unexpired term in the senatorial primaries. There were no elections in the State during the year.

The sensation of the year in politics was the attempt of Governor Burke and a portion of the Republican party to impeach John F. Cowen, the judge of the Devils Lake district. The State senate was in special session for about two months on this case, and the accused was found not guilty on every one of the hundred or more counts brought against him. The expenses of this trial reached about \$100,000.

LEGISLATION. The important measures passed by the legislative session of 1911 included the following: A juvenile court was created, similar to that which has been for some time in operation in Colorado. A measure was passed materially raising the standards of the medical profession in the State. The study required preliminary to taking a State examination is two years of college and four years of medical school work. An exception is made in the case of an osteopath who, though not allowed to administer drugs, may perform minor surgical operations. The osteopaths have a separate board of examiners, and the only preliminary education required is a two years' course in one of their high schools. Cities are authorized to adopt the so-called commission form of government with the initiative, referendum, and recall features. A very drastic anti-lobbying bill was passed. A resolution was adopted for submission to the people, which seeks to amend the constitution of the State so as to provide a general system of

initiative, referendum, and recall. The question as submitted to the people will be presented in the form of two propositions, first, whether they desire the initiative and referendum to be applied to the State constitution as well as to the acts of the State legislature, and second, whether they desire the system to apply merely to legislation. A comprehensive anti-pass bill was enacted.

STATE OFFICERS. Governor, John Burke; Lieutenant-Governor, U. L. Burdick; Secretary of State, P. D. Norton; Treasurer, Gunder Olson; Auditor, D. K. Brightbill; Attorney-General, Andrew Miller; Superintendent of Education, E. J. Taylor; Commissioner of Agriculture, W. C. Gilbrath; Commissioner of Insurance, W. C. Taylor—all Republicans, except Burke, Democrat.

JUDICIARY. Supreme Court: Chief Justice, David E. Morgan; Justices, Charles J. Fisk, B. F. Spalding, E. T. Burke, E. B. Goss; Clerk, R. D. Hoskins—all Republicans, except Fisk.

STATE LEGISLATURE, 1911: Senate, Republicans, 44; Democrats, 5; House, Republicans, 87; Democrats, 13; joint ballot, Republicans, 131; Democrats, 18; Republican majority, Senate, 39; House, 74; joint ballot, 113.

The representatives in Congress will be found in the article UNITED STATES, *Congress*.

NORTH DAKOTA (SHIP). See **BATTLE SHIPS**.

NORTH DAKOTA, UNIVERSITY OF. An institution of higher learning at Grand Forks, N. D., founded in 1883. The number of students enrolled in all departments in 1910-11 was 967. Of these 169 were in the College of Liberal Arts; 45 in the College of Mining Engineering; 40 in the College of Mechanical and Electrical Engineering; 39 in the School of Medicine; 64 in the Law School; 18 in the course in civil engineering; 113 in the Teachers' College; and 7 in the graduate department. The faculty numbered 23 professors, 1 associate professor, 14 assistant professors, 32 instructors, 13 lecturers, and 6 student assistants. Dr. Harley E. French was appointed professor of anatomy and dean of the School of Medicine, and Roger W. Cooley was appointed professor of law in the Law School. The total property of the university amounts to \$2,430,000. Two new buildings were completed during the year, one for the Teachers' College and the other for the university commons. A new department of ceramics and a course for nurses were established. The university maintains a quarterly publication known as *The Quarterly Journal of the University of North Dakota*. The library contains about 45,000 volumes. The president is Frank L. McVey.

NORTHERN NIGERIA. A British west African protectorate. Area (official estimate), 255,700 sq. miles. Population (rough estimate 1908), 7,164,751. Europeans (1909), 544 (death-rate per 1000, 23.89). The Fulani, Hausas, and other prominent tribes are Mohammedans; the rest, pagans. Cattle- and horse-raising are carried on by the Fulani in the north. Forest products are collected by the natives and bartered to the Nigeria and other companies for earthenware, hardware, and cotton goods. Other products are fruits, rubber, kola nuts, cotton, tobacco, capsicums, peanuts, etc. Iron, potash, and tin are mined. As much of the trade is by barter, complete export statistics are unavailable; a large part of the imports

are consigned to the ports of Southern Nigeria. Declared imports for 1909, £909,905; exports, £309,742. Railways open (1910), 130 miles (see SOUTHERN NIGERIA); telegraphs, 2297. Revenue (local) and expenditure 1909-10, £213,436 and £566,843 respectively; 1910-11, £274,990 and £565,760. Grant-in-aid 1910-11, £200,000; 1911-12, £286,158. Southern Nigeria contributes £70,000 annually in addition. Governor and commander-in-chief, Sir H. Hesketh Bell. See EXPLORATION.

NORTHWESTERN UNIVERSITY. An institution of higher learning at Evanston and Chicago, Ill., founded in 1851. The number of students enrolled in the various departments of the university in 1910-11 was 4705. The faculty numbered 388. During the year Dr. Albert H. Wilde, professor of history in the College of Liberal Arts, resigned to become president of the University of Arizona. Other resignations were those of Dr. Alfred N. Richards, professor of pharmacology; Dr. James M. Neff, associate professor of surgery; Dr. Fred Wilbur Thyng, assistant professor of anatomy. Charles E. Hammett was appointed director of athletics in the College of Liberal Arts; Dr. Hugh McGuigan professor of pharmacology, and Mr. George A. Grant-Schaefer instructor in voice culture. The total benefactions received during the year amounted to \$288,175. This includes the endowment of \$250,000 by Mr. James A. Patten for research in the Medical School, and \$8064 by Judge E. R. Gary for the library of the Law School. The amount of the productive funds of the university is \$4,622,751 and the income from all sources is \$714,000. The library contains 145,000 volumes. The president is Abram W. Harris, LL. D.

NORTH-WEST TERRITORIES, THE. All that part of British North America not included within the provinces, the Yukon territory, or the colony of Newfoundland and its dependencies; composed of the districts of Keewatin, Mackenzie, Ungava, and Franklin. Area, 1,933,715 sq. miles; population census of June 1, 1911, 16,951. The country is administered by the comptroller of the Royal Northwest Mounted Police (1911, Lieut.-Col. Frederick White), who is the commissioner for the territories, with full executive, legislative, and administrative powers. He is aided by a council of not more than four members. The seat of government is Ottawa, Ont. See CANADA.

NORTON, CHARLES STUART. A rear-admiral retired, of the United States navy, died June 24, 1911. He was born in Albany, N. Y., in 1836 and graduated from the United States Naval Academy in 1855. He served throughout the Civil War and in 1862 was promoted to the rank of lieutenant-commander. He was made commander in 1880 and captain in 1881. In 1898 he was promoted to the rank of rear-admiral. During the Civil War he participated in the blockade of Charleston, S. C., and in several engagements. He was present at the battle of Port Royal. After the war he commanded several vessels and served on the board of inspection and survey. In 1894-96 he was rear-admiral, commanding the South Atlantic station. From 1896 to 1898 he commanded the Washington navy yard and station. In the latter year he was retired by operation of law.

NORWAY. A constitutional monarchy of northern Europe. Capital, Christiania.

AREA AND POPULATION. Land area, 309,

986.40 sq. kilometers; water, 13,000.17; total, 322,986.57 sq. kilometers, or 124,707 sq. miles. Population (census of December 1, 1910), 2,392,698 (1900, 2,240,032). Marriages (1909), 14,051; births, 61,234; deaths, 31,641; emigrants, 16,281. Christiania had (census of December 1, 1910), 243,801 inhabitants (227,626 in 1900); Bergen, 76,917 (72,251); Trondhjem, 45,228 (38,180); Stavanger, 37,118 (30,613); Drammen, 24,904; Fredrikstad, 15,624; Christian sand, 15,154; Christiansund, 13,012.

EDUCATION, ETC. Public elementary schools (1907): 5970 rural, with 275,155 pupils; 2808 town classes, with 90,129. Total expenditure on primary instruction (1907), 12,293,000 kroner (state, 3,969,000). Secondary schools, 91, with (1907-8), 15,563 pupils. Communal and private schools, 91, with 3690 pupils. Normal schools, 10, with 902 students. The University of Christiania had 1550 students in 1909. Primary instruction is compulsory. The evangelical Lutheran is the national and only state-endowed church, though all creeds (excepting Jesuitism) are tolerated.

AGRICULTURE. Of the total area, 3.5 per cent. only is under cultivation; 21.5 is under forest, and 75 is unproductive. The following table gives the final returns of cereal area and production in 1911 as compared with 1910, and the yield per hectare in 1910:

	Hectares		Quintals		Per
	1910	1911	1910	1911	ha.
Wheat ..	5,021	5,021	85,666	73,513	17.1
Rye	15,056	15,056	269,801	240,615	17.9
Barley ..	35,916	35,916	647,218	584,024	18.0
Oats	106,279	106,279	1,737,570	1,479,373	16.3

The total cereal crop in 1909 was valued at 37,506,200 kroner; the potato crop, at 30,652,000; the hay crop (2,903,237 tons), at 130,645,700.

The staple crops are as follows in thousands of kilograms (a = sown; b = harvested; c = imported; d = exported):

		1900	1907	1908	1909
Wheat	a.....	1,131	1,131	1,091	1,091
"	b.....	8,846	7,876	8,955	8,501
"	c.....	75,746	101,174	87,154	89,581
"	d.....	942	454	255	1,277
Rye	a.....	1,923	1,923	2,437	2,437
"	b.....	22,082	20,877	22,045	25,662
"	c.....	275,216	263,422	255,774	299,174
"	d.....	2,681	1,401	4,687	7,146
Barley	a.....	9,133	9,133	8,063	8,063
"	b.....	100,926	63,248	4,390	63,376
"	c.....	98,227	120,79	110,172	124,892
"	d.....	404	963	655	735
Oats	a.....	22,961	22,961	23,870	23,870
"	b.....	177,334	123,044	198,825	154,711
"	c.....	14,417	29,983	11,560	18,728
"	d.....	1,892	456	417	527
Potatoes	a.....	79,862	79,862	89,709	89,709
"	b.....	581,650	430,221	711,206	560,337
"	c.....	5,645	5,495	4,386	6,734
"	d.....	234	413	343	282

Livestock 1907 as compared with 1900: 172,468 horses (172,999 in 1900), 1,094,101 cattle (950,201), 1,393,488 sheep (998,819), 296,442 goats (214,594), 318,556 swine (165,348), 142,623 reindeer (108,784).

FISHERIES, ETC. In the cod fisheries, 21,001 vessels were engaged in 1909; dories, 10,403; persons, 93,638. The catch (56,207,800 hectoliters) was valued at 18,145,600 kroner; the

herring catch (2,674,000 hectoliters) at 9,903,000; mackerel (14,931,163), at 1,394,000; whiting and so forth, at 7,397,200; salmon and sea trout (850,039 kilograms), at 1,208,100; lobsters (1,249,533), at 1,148,000; oysters, at 10,300; making a total value in 1909 of 39,206,100 kroner.

Persons engaged in mining (1908), 6174; output from all mines, 470,378,000 kilograms; value, 10,339,000 kroner. The metallic industries employed 21,651 persons; paper mills, 12,250; textile industries, 10,309.

COMMERCE. The trade as given below shows imports, exports of Norwegian produce, and re-exports, and total exports (in thousands of kroner):

	Imports	Ex. Nor.	Re-ex.	Total
1909	386,617	234,641	29,685	264,326
1908	376,129	211,248	28,829	240,077
1907	385,708	219,972	33,129	253,101
1900	310,653	162,745	10,201	172,946

The principal articles of special trade are in 1909 in thousands of kroner as follows: Imports—cereals, 64,300; textiles, 40,600; oils, 32,600; colonial products, 31,300; coal, 30,200; minerals, 24,700; metal manufactures, 21,500; skins, etc., 17,300; metals, 16,600; yarns, 11,700; animals, etc., 13,400. Exports—animals, etc., 84,100; wooden wares, 42,600; timber, 34,800; minerals, 25,300; paper, etc., 22,000; skins, etc., 15,000; oils, 9000; metals, 4400; cereals, 3400; textiles, 1500; miscellaneous, 16,700.

Following are the principal countries of origin and destination, with the value of their trade in 1909 in thousands of kroner: Germany, imports 117,223 and exports 46,565; Great Britain, 89,323 and 85,145; Sweden, 41,687 and 16,817; Denmark, 19,739 and 5980; Russia, 28,484 and 9844; United States, 28,306 and 18,986; Netherlands, 12,878 and 8391; Belgium, 12,093 and 9212; France, 9473 and 12,401.

The merchant marine, January 1, 1909, included 5742 sailing vessels, of 725,392 tons; 2810 steamers, of 855,154. Vessels entered (1909), 10,684, of 4,466,009 tons; cleared, 11,181, of 4,546,810.

COMMUNICATIONS. Miles of railway in operation (1911), 1849. The state owns the majority of the railroads, and projects the construction of new lines as follows: Otta-Dombaa, to be opened 1912; Aamli-Tveitsund, 1913; the Dovre Railway, 1916; Kongsberg-Gvarv-Notodden, 1918; Myrdal-Fretheim, 1919; Gvarv-Kragero, 1922; and Sunan-Grong, 1922. Cost of construction to be in the neighborhood of 60,700,000 kroner. State telegraph and telephone lines (officially reported together, 1909), 11,725 miles; stations, 1052. Post offices, 3307.

FINANCE. The krone (worth 26.8 cents) is the unit of value. Financial statistics are given for three successive years in the table below, in kroner:

	1907-8*	1908-9†	1909-10†
Revenue	114,936,824	144,588,364	122,243,829
Expenditure	108,118,864	137,459,221	116,751,005

* To March 31, 1908. † To June 30, 1909 and 1910.

The 1909-10 budget is detailed as follows:

Rev.	1000 kr.	Expend.	1000 kr.
Customs	48,909	Public Works	36,222
Railways	19,994	Finance	20,983
Indirect taxes	9,376	Defence	20,979

Rev. (cont.)	1000 kr.	Expend. (cont.)	1000 kr.
Posts	8,028	Instruction, etc.	13,357
Direct taxes	7,601	Justice	8,266
Tels. & tels.	5,331	Agriculture	3,075
From capital	4,102	Council, etc.	1,875
Instruction	3,652	Commerce, etc.	1,524
State domains	2,209	For. Affairs	910
Various	6,467	Storthing	800
		Civil list	747
		Various	679

Total ord.....115,669

Extraord. 6,575

Total122,244

Total ord.....109,419

Extraord. 7,332

Total116,751

The national debt stood, June 30, 1910, at 329,298,353 kroner.

ARMY. The army of Norway was still in process of reorganization in accordance with the legislation of 1909, which provided for compulsory service in the national militia, maintained on a skeleton, or "cadre," basis. There is a *ligne* in which there is 12 years of service, a *Landvaern* with 8 years' service, and a *Landstorm* where service up to the age of 50 years is required. The army is made up of volunteers and of those serving for various short periods of time, amounting usually to 72 days for the infantry, and 126 days yearly for the artillery. With the first line filled up the armed strength for service beyond the frontier is estimated at about 30,000, while a total of 70,000 men could be mobilized. The regiment is the unit, but there is also a brigade organization which permits of easier mobilization.

NAVY. The number of effective vessels in 1911 was 59, of 29,920 aggregate tons, detailed as follows: 4 coast defense vessels (16,300 aggregate tons), 2 monitors (3500), 3 first-class gunboats (3250), 8 second-class gunboats (2270), 2 torpedo-boat destroyers (1100), 1 torpedo dispatch boat (410), 10 first-class torpedo boats (1020), 27 second-class torpedo boats (1840), 1 third-class (30), 1 submarine (200).

The plan submitted to the Storthing by the committee of defense (December, 1910), provided for the construction of 8 ironclads, 6 destroyers, 40 torpedo boats, 12 submarines, 4 gunboats, and 10 miscellaneous vessels. In 1911 3 destroyers and 1 torpedo boat were building. Another submarine has been authorized. Personnel, about 3400.

GOVERNMENT. The executive is vested in the king (in 1911, Haakon VII.), acting through a council of state. The representative Storthing, composed of the Lagthing and the Odelsting, is the legislative body. The council (constituted February 1, 1910) was composed in 1911 as follows: Premier and Minister of State, W. Konow; Foreign Affairs, J. Irgens; Worship and Instruction, J. Qvigstad; Justice, H. Scheel; Commerce, Navigation, and Industry, B. Braenne; Agriculture, B. Holtsmark; Public Works, H. Darre-Jenssen; Finance, A. Berge; Defense, Col. S. Bull.

HISTORY. During the session of the Storthing, which ended August 9, the most discussed measure was that concerning the improvement of the lakes and water courses. The Left demanded that such improvements should eventually revert to the state, while the Conservatives held that this was an infringement on the right of private property. The government measure did not provide for the state's recovery of possession, but in view of the opposition to it it was referred to an extraordinary commission, which framed a

compromise bill which was finally accepted. Another measure that was passed in this session was that relating to the direct taxes. The municipal taxes were heavier than those of the state, and in some localities were steadily increasing. The new law limited the share of the communes in the revenue to 10 or 12 per cent. It also required the taxpayers to render an exact report of their income and fortune, under severe penalty for intentional misrepresentation. For the first time in the history of the Storting a woman held a seat in Parliament. Mlle. Anna Rogstad was elected as supplementary deputy and sat in the Storting for a short time during the absence of a deputy from Christiania.

NOTE ISSUES. See BANKS AND BANKING.

NOVA SCOTIA. A maritime province of the Dominion of Canada. Capital, Halifax (population, preliminary returns, census of April, 1911, 46,081). Area, 21,428 sq. miles. Population (1911 final), 492,338. The province is administered by a lieutenant-governor (in 1911, appointed October 18, 1910, James Drummond McGregor), a lieutenant-governor, appointed by the governor-general of Canada. He is aided by an executive council (responsible ministry), and a legislature of two houses—the Legislative Council (17 appointed members) and the Legislative Assembly (38 elected members). Premier in 1911, George Murray. See CANADA.

NUTRITION STUDIES. See FOOD AND NUTRITION.

NYASSALAND PROTECTORATE.

A British African dependency, with an area of 43,608 sq. miles; population (1910 estimate), 587 Europeans (mostly in the Shiré province), 435 Asiatics, and about 922,000 natives. Capital, Zomba. The chief town is Blantyre, with about 200 Europeans and 6000 natives. Pupils enrolled in mission schools, 96,000. The main crops are coffee (in the Shiré province), of which in 1909-10 748,410 pounds were exported; tobacco, 1,084,757 pounds exported; cotton, 858,296 pounds grown; tea, 36,281 pounds exported. Livestock, mostly native-owned, in 1909-10: 57,658 cattle, 17,840 sheep, 111,973 goats, 14,221 swine. Imports and exports (1910-11), £193,490 and £147,340, exclusive of transit.

Revenue and expenditure (1910-11), £94,980 and £112,360. Grant-in-aid in 1909-10, £30,000. Miles of railway, 113. Steamers ply the lake and the rivers. A telegraph line connects with Ujiji, on Lake Tanganyika. Governor and commander-in-chief (1911), Col. Sir. W. H. Manning.

OAKLAND (CAL.). See MUNICIPAL GOVERNMENT.

OATS. The world's oat crop in 1911 was about 10 per cent. short of the crop of 1910. The heaviest reductions in yield occurred in the United States, Russia, Rumania, and the United Kingdom. This shortage was generally due to dry weather and excessive heat at a critical time in the growth of the crop. The International Institute of Agriculture at Rome reports the total production in 20 countries of the northern hemisphere at 3,746,493,000 bushels in 1911 and at 4,122,825,000 bushels in 1910. The area devoted to oats in the two years was about the same. Russia, which rivals the United States in leadership, produced 858,356,000 bushels in 1911 and 1,045,991,000 bushels in 1910. Germany yielded 530,764,400 bushels in 1911 and 544,286,500 bushels in 1910, the acreage in 1911 being the greater by about 95,000. The

Spanish yield in 1911 was 350,815,000 bushels, an increase of 5.5 per cent. over 1910, which was due mainly to a larger acreage. The production of the United Kingdom in 1911 was 194,270,000 bushels, which was 9.5 per cent. below the previous year's production, while the acreage had decreased only a little over 1 per cent. Austria yielded 156,630,000 bushels and Hungary including Croatia and Slavonia 90,200,000 bushels in 1911. The yield in Austria was 10 per cent. above last year's crop, and the yield of the other three countries 28 per cent. higher, due partly to larger acreages and partly to a better yield. A more complete list of yields by countries is given under AGRICULTURE.

In the United States the oat crop suffered in nearly every section of the country in which it was grown and in no other country was the reduction in yield so great. In general, lack of moisture and high temperature coming either singly or in combination at critical times during the period of growth caused the injury. Only few sections produced a normal crop and over a large portion of the oat-growing territory not even a fair yield was secured. A large acreage of the crop was cut for hay when it became apparent that the hay crop also would be one of the shortest on record. This practice reduced the average yield per acre as the average is figured on the acreage seeded, and no determination of the acreage not harvested for grain was made. The dry weather produced the greatest reduction in yield in South Dakota, Oklahoma, Nebraska, Kansas, and Missouri. The total crop of the United States in 1911 was only 922,298,000 bushels, as compared with 1,186,341,000 bushels in 1910. The acreage of 1911 was 37,763,000, the highest on record. The total value of the crop, based on the average farm value of 45 cents per bushel on December 1, 1911, was \$414,663,000, also the highest value on record. The leading States and their yields in 1911 were as follows: Iowa, 126,225,000 bushels; Illinois, 121,536,000 bushels; Minnesota, 67,214,000 bushels; Wisconsin, 67,050,000 bushels; Ohio, 54,570,000 bushels, and North Dakota, 51,230,000 bushels. The average yield for the entire country was 24.4 bushels per acre in 1911 and 31.8 bushels in 1910. The highest average yield for any State was 51.7 bushels per acre, which was secured in Washington.

OBERLIN COLLEGE. An institution of higher learning, at Oberlin, O., founded in 1833. The students enrolled in the various departments in 1910-11 numbered 2043, divided as follows: College of arts and sciences, 1004; theological seminary, 71; conservatory of music, 479; academy, 539; drawing and painting, 70; summer session, 60. During the year Prof. Charles Nelson Cole, Ph. D., was elected to the office of dean of the college of arts and sciences. In the theological seminary was erected a new chair of comparative religion, occupied by Prof. F. S. MacLennan. The year saw the completion of a half million dollar fund to which two years of effort had been given. This includes one gift from an anonymous donor of \$200,000, another of \$125,000 from the general education board, one of \$50,000 from an anonymous donor, and one of \$40,000 from Dr. L. C. Warner. About half the fund will be used for endowment. The system of professional athletic coach was abolished and a recent graduate was employed as instructor in physical training and as athletic coach. This officer has been made a regular

member of the faculty. The library contains about 115,000 volumes. The president is Henry C. Keene, D. D.

OCCUPATIONAL DISEASES. The dangers to health and life and the losses attending special trade diseases have been given considerable attention for several years in this country. This has been due primarily to the activities of the American Association for Labor Legislation, which has not only carried on investigations on its own behalf, but has also given publicity to the results of European investigations. It is needless to say that the legislation in the United States for the protection of workers from industrial diseases is greatly behind that of the more advanced European countries. The view that the burden of industrial accidents should be borne by the industry rather than by the individual workers, which has wrought considerable changes in the employers' liability laws (q.v.), has been applied also to the matter of diseases inherent in various trades. Either conditions which produce these diseases must be eliminated, or, this being impossible, the industry must bear the burden rather than the individual employee. The United States Bureau of Labor published a list of thirty industrial poisons, including antimony, arsenic, chlorine, mercury, lead, phosphorus, picric acid, and prussic acid. Usually these poisons enter the system through the inhalation of dust; less frequently through the skin or mucous lining of the mouth. There are many dangers in the manufacture of chemicals, dye stuffs, and colors, certain parts of the metal, glass, rubber, and leather industries, in the manufacture of explosives, in mining and smelting, in hat making, and some other trades. Pulmonary tuberculosis and pneumonia are very common trade diseases, that is, numerous occupations so weaken the resisting powers of the lungs that these diseases readily secure a hold. This applies to all such trades as those of potters, cutlers, file-makers, glass-makers, and many others where dust particles organic or inorganic are common. Dr. George M. Kober in preparing the report for the United States Bureau of Labor, presented data showing that in all dusty trades lung diseases are fully twice as frequent as in other trades. What is required is regular medical inspection and respirators to protect the lungs from dust, blowers and exhausts to carry away dust and fumes, safety hoods, shields, masks, and gloves to protect the worker from flying dust, intense heat, and dangerous gases.

ILLINOIS COMMISSION'S REPORT. The Illinois Commission on Occupational Diseases of nine members appointed in March, 1910, transmitted its report to Governor Deneen in January. This was a committee of the highest order, including the president and secretary of the Illinois State Board of Health, two members of Rush Medical College, two representatives of State labor departments, and Prof. Charles R. Henderson of the University of Chicago, who acted as secretary. The committee limited its inquiries primarily to industrial poisons, upon which it presented a report of 200 pages. The following poisons were studied: Lead, phosphorus, zinc, turpentine, carbon monoxide gas, anthrax, cyanide of potash, nitrate of silver, hydrofluoric acid, metal platinum, the chromates, and chronic acid. nystagmus or oscillation of the eyeball. Special investigators were employed for each line of in-

quiry. Lead was found to be by far the most important of the industrial poisons, being employed in thirteen trades and twenty-six lines of manufacture. Of these the most dangerous are lead smelting, the white lead trades, paint factories, the painting trade, and the manufacturing of storage batteries. The bad effects of white lead upon painters, of whom there were 30,000 in Illinois, included painters' colic, paralysis, loss of weight, diseases of the blood vessels, liver, kidneys, and heart, insanity and senility. The report also brought out marked differences in the protection afforded by medical inspection and otherwise in England and Germany, as compared with the United States. Thus, in an English factory employing 90 men, no case of lead poisoning was found in five years, while in an American factory employing 94 men, 28 per cent. had been poisoned. Various sorts of diseases were found to be common to workers in brass, in addition to the very frequent "brass founder's ague." The workers in compressed air were found to be injured in very large proportions. In completing the Hudson tunnels at New York the proportion of deaths was 25 per cent. for the first employees, but by means of proper methods of introducing workers into and gradually removing them from the compressed atmosphere, the proportion of deaths was reduced to 1 per cent. of the employees. The commission recommended protection of workers in occupations where trade diseases were found, considerably enlarged responsibilities in this respect to be imposed upon employers.

PHOSPHORUS POISONING. Following the completion of its investigation into phosphorus poisoning in match factories in the United States in 1910, the American Association for Labor Legislation began an agitation for the enactment of a law forbidding the use of white phosphorus in matchmaking. This substance produces the loathsome disease known as phosphorus necrosis, or "phossy jaw." This disease eats away the bones of the jaws, causing an almost unbearable odor and terrible disfigurement. European countries have uniformly forbidden the use of white phosphorus since the discovery of a harmless substitute, the sesquisulphide of phosphorus. The Diamond Match Company, sometimes called the match trust, held an exclusive patent right to the use of this substance in this country. It, however, generously agreed to surrender its exclusive rights and place the control of this substance in the hands of a board of trustees. The following trustees were selected in January: Prof. E. R. A. Seligman of Columbia University, Commissioner of Labor Charles P. Neill, and Jackson Ralston, an attorney for the American Federation of Labor. Following their appointment President Taft wrote them suggesting that the use of the patented substance be open to all. The trustees were given full power to fix whatever conditions they deemed fair under which all match manufactures could use the non-poisonous phosphorus. Previous to this there had been introduced in Congress the Esch bill forbidding the use of the white phosphorus. The passage of this bill would have given the Diamond Company a monopoly of match manufacturing in this country; it was therefore vigorously opposed by independent match concerns. The action of the large company, however, in surrendering its exclusive control removed this objection. Meanwhile other bills were introduced and action was prevented in 1911. The Esch bill, with tre-

mendous public backing, was again introduced in December with every probability of passage. A hearing on it was set for January 10, 1912. The aim of the bill is to prohibit the manufacture and sale of poisonous phosphorus matches by taxing them heavily under the internal revenue system.

LEGISLATION. The American Association for Labor Legislation is endeavoring to secure the enactment of uniform laws in the various States requiring the report of all diseases arising from occupations. The model law provides a small fee for each case reported, and a penalty for failure to report. It was adopted, with slight variations in some cases, in California, Connecticut, Illinois, Michigan, New York, and Wisconsin in 1911. The diseases which must be reported are the following: Anthrax, compressed air illness, and poisoning from lead, phosphorus, arsenic, or mercury, or their compounds. The law requires that the name, postal address, and place of employment of the sufferer, together with the name of the disease, be reported to the State Board of Health or the State Department of Labor. Penalties for failure to report are provided in all the States except Connecticut; and California and Connecticut provide a fee of fifty cents for each report to the physician making it.

At the conference of the American Association for Labor Legislation (q.v.), in Chicago there was considerable discussion of the question whether physicians should be given a fee for reporting cases of trade diseases. Some physicians had declared it to be an insult to offer only fifty cents, while others had said that one effect would be to stimulate false reporting for the sake of the fee. The consensus of opinion at the conference was that a fee should be paid.

OCEANIA, FRENCH. See **FRENCH ESTABLISHMENTS IN OCEANIA.**

OCEANS, ORIGIN OF. See **GEOLOGY.**

O'CONNELL, WILLIAM HENRY An American prelate of the Roman Catholic Church, created cardinal in November, 1911. He was born at Lowell, Mass., in 1859 and graduated from Boston College in 1881. In the same year he entered the North American Collège at Rome. He was ordained priest in that city in 1884 and was appointed rector of the North American College in the following year. In 1897 he was appointed domestic prelate and in 1901 was appointed bishop of Portland, Me. He was consecrated bishop at the church of St. John Lateran, Rome, on May 19, 1901. In 1905 he was named assistant at the pontifical throne, and in the same year was appointed special papal envoy to the emperor of Japan. In 1906 he was appointed archbishop of Constance and coadjutor with succession of Boston. He succeeded to the see of Boston on the death of Archbishop Williams (1907). He was one of the three American cardinals created at the consistory of 1911.

ODIN, ERSATZ. See **NAVAL PROGRESS, Propulsion.**

O'GORMAN, JAMES ALOYSIUS. An American public official, United States senator from New York. He was born in New York City in 1860 and was educated in the College of the City of New York and in the New York University Law School, where he received his degree in 1882. In the same year he was admitted to the bar. He took an early interest in politics and before he reached his majority was a prominent

member of Tammany Hall. In 1893, partly through the influence of Richard Croker, he became justice of the District Court of New York. He held this place until 1900, when he was elected justice of the State Supreme Court on the Democratic ticket. While he was a justice he was elected grand sachem of Tammany Hall to succeed Lewis Nixon. His election was regarded as a perpetuation of the influence of Richard Croker of that organization. He held the office of grand sachem until 1905. The election of Justice O'Gorman was a compromise between the regular Democratic members of the legislature and the body of insurrectionists who were opposed to the election of William F. Sheehan. For details of the contest which led to the election of Senator O'Gorman, see **NEW YORK.**

OHIO. POPULATION. The Thirteenth Census showed a population in 1910 of 4,767,121, as compared with 4,157,545 in 1900. The principal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Cincinnati, 363,591 (325,902); Cleveland, 560,663 (381,768); Toledo, 160,497 (131,822); Youngstown, 79,066 (44,885); Dayton, 116,577 (85,333); Akron, 69,067 (42,728).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. In that year the farms in the State numbered 272,545 compared with 276,719 in 1900. The land in farms was 24,105,708 acres, compared with 24,501,985 acres in 1900. The improved land in farms was 19,227,969 acres, compared with 19,244,472 acres in 1900. The average acreage per farm was 88.6, compared with 88.5 in 1900. The value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$1,902,694,589 in 1910, compared with \$1,198,923,946 in 1900. The average value of property per farm in 1910 was \$6994, compared with \$4333 in 1900. The average value of land per farm per acre in 1910 was \$53.34, compared with \$33.35 in 1900. Of all the farms in the State in 1910 194,857 were operated by owners and managers, and 77,188 by tenants. Of the farms operated by owners, those free from mortgage numbered 135,616, those under mortgage 54,997. The native white farmers numbered 252,654; the foreign-born white 17,450; negro and other non-white, 1950. Total value of domestic animals of all kinds in 1910 was \$197,332,112. The cattle numbered 1,837,607, valued at \$51,403,344; horses and colts, 910,224, valued at \$93,910,638; mules, 22,850, valued at \$2,775,831; swine, 3,105,627, valued at \$19,412,730; sheep, 3,909,162, valued at \$14,941,381; poultry of all kinds numbered 17,342,289, valued at \$9,532,672. The acreage, production, and value of the principal crops of 1910 and 1911 are shown in the following table:

		Acreage	Prod., bu.	Value
Corn	1911	8,900,000	150,540,000	\$87,313,000
	1910	8,960,000	144,540,000	66,488,000
Wheat	1911	2,265,000	36,240,000	32,978,000
	1910	2,125,000	34,425,000	30,982,000
Oats	1911	1,700,000	54,570,000	24,556,000
	1910	1,770,000	65,844,000	23,045,000
Rye	1911	60,000	930,000	790,000
	1910	65,000	1,072,000	772,000
Potatoes ..	1911	190,000	12,350,000	10,374,000
	1910	210,000	17,220,000	8,782,000
Hay	1911	2,556,000	2,505,000	47,344,000
	1910	2,840,000	3,948,000	49,350,000

	Acreage	Prod., bu.	Value
Tobacco ..1911	88,000	681,400,000	6,186,400
1910	110,000	89,100,000	7,573,500

a Tons. b Pounds.

MINERAL PRODUCTION. The production of coal in the State was 34,209,668 short tons, valued at \$35,932,288. Although more than half the coal miners of the State were on strike in 1910 for a period equivalent to 25 per cent. of the average number of days' work, the increase in production over 1909 was the largest gain ever made in one year. In 1909 the State produced 27,939,641 short tons. The increase in 1910 was 6,270,027 short tons. This was due chiefly to the long-continued idleness in the States to the west; and in addition to the influences exerted by the strike, the cold winter of 1909-10 had cleared the lake docks in the Northwest of coal, so that the year opened with a good demand for Ohio coal. There was unusual activity during the year, except for the comparatively short time of the strike of the organized men and during two local strikes. Ohio was first in the percentage of the total production of coal by the use of machines. In 1910, 28,887,241 short tons, or 84.44 per cent. of the total, were machine mined. The total number of men employed in the coal mines of the State in 1910 was 46,641. These averaged 203 working days. During the year 161 men were killed and 471 injured in the coal mines.

The iron ore mined in the State in 1910 amounted to 22,320 tons, valued at \$135,866, as compared with 16,527 tons, valued at \$28,547 in 1909.

The coal output in 1911 showed a considerable decrease from that of 1910. This was estimated at the end of the year to amount to between 10 and 15 per cent. The smaller output was due to the fact that in 1910 the production in Ohio was stimulated by the strike in Illinois and the southwestern fields. In the latter half of the year the demand for coal in Ohio was very light and in some sections the shipment was hardly more than 50 per cent. of the normal, while the lake trade was 25 per cent. or more below normal during the greater part of the year.

POLITICS AND GOVERNMENT

The political history of the year in Ohio in 1911 was of unusual importance. There is much that is painful in the record, as it deals largely with political corruption, but the results achieved point to a remedy for these conditions and a more healthful atmosphere in the future. The legislature met and passed some important measures, many of them enacted at the instance of Governor Harmon. A record of these acts will be found in the paragraph *Legislation* below.

On January 9 Judson Harmon was inaugurated governor for the second time and W. Atlee Pomerene was sworn in as lieutenant-governor. On the following day Mr. Pomerene was elected United States senator to succeed Senator Dick, whose term had expired. Mr. Pomerene received every Democratic vote in the legislature. On January 19 the legislature ratified the income tax amendment to the constitution.

ELECTORAL CORRUPTION. Following the elections held in November, 1910, charges of wholesale fraud in the elections in Adams and Scioto

counties were made. As a result of these charges a grand jury carried on an investigation in Adams county early in January, and a remarkable condition of political corruption was revealed. As a result of the investigation over one-third of the voters in the county were indicted, and on the invitation of Judge A. Z. Blair of the court of common pleas, that those under indictments confess and receive light sentences, nearly 2000 voters came to the county seat and were fined and given a workhouse sentence, which was suspended. The knowledge that those who confessed would receive mild sentences, while those who endeavored to evade the law would be heavily punished, induced the indicted men to accept the terms offered by the court. In these indictments only the sellers of votes were affected. No effort was made to indict those who had offered the bribes. Among those indicted were well-to-do farmers and several clergymen. It was found that for years from \$10,000 to \$25,000 had been distributed at every election held in the county. Governor Harmon, in his message to the legislature, commented severely on the conditions and emphasized the fact that the briber is a more dangerous and a more disreputable person than the one bribed, and urged that the law be administered with this principle in view. He deplored the repeal of the Garfield corrupt practices law and recommended its reenactment. He also made the suggestion that the State undertake to provide for all the necessary expenditures of election and make all party expenses for such purposes illegal. An investigation carried on in February in Scioto county resulted in the indictment of forty persons for corruption in the elections.

LEGISLATIVE CORRUPTION. Scarcely had the revelations of the corruption in elections ceased to be a sensation when deplorable conditions were revealed in the State legislature. Rumors of alleged corruption had become common and William J. Burns was employed to carry on an investigation. This he did in March and April and a scandalous condition in the legislature was revealed. The detectives claimed to have discovered the fact that some sixty members of the legislature were apparently engaged in corrupt practices. Pretended bribery negotiations were carried on by the detectives with certain legislators, and by this means evidence was obtained of the willingness of these men to accept bribes for passing or defeating particular measures. On the revelation of these conditions a grand jury was convened. An attempt was made by the members of the legislature to have a committee of legislators appointed to investigate these charges, but this was prevented by Governor Harmon for the reason that under the laws of Ohio guilty persons would win immunity from prosecution by confessing before a committee of legislators. A grand jury was convened, and it was urged by Governor Harmon to make the most thorough investigation possible. The governor declared that the legislature must remain in session until the investigation reached the last recesses of legislative corruption. On May 2 every member of the calendar committee of the House, against which much suspicion had been directed, resigned, except Dr. George B. Nye, who, several days before had brought about the arrest of three detectives employed by Mr. Burns, who, he declared, had paid him bribes. On May 3 the grand

jury brought in indictments against five members of the legislature and against Rodney J. Diegle, sergeant-at-arms in the senate. The five were: Dr. George B. Nye and A. C. Lowrey of the house and George K. Cetone, Isaac E. Huffman, and L. R. Andrews of the senate. On May 5 these men were arraigned and all pleaded "not guilty." The first trial to be held on these indictments was that of Dr. George B. Nye. This began on May 23. He was charged with soliciting a bribe of \$500 to vote for the Kimble bill, which was designed to legislate out of office Judge A. Z. Blair, who exposed the vote-buying scandal in Scioto and Adams counties. He was also charged with soliciting other bribes. Dr. Nye was acquitted on June 1, but was indicted a week later on another charge. Rodney J. Diegle was, in the same month, put on trial on the charge of aiding Senator L. R. Andrews in soliciting a bribe. F. H. Smiley testified that he had bribed Senators George K. Cetone, Isaac E. Huffman, and L. R. Andrews to vote an insurance bill out of the committee. Smiley was one of the detectives employed by Mr. Burns, who testified to having given each of these men four \$50 bills. He claimed that Diegle had introduced him to these senators. Diegle was convicted on July 3 and was sentenced to three years in the Ohio penitentiary. On June 9 the grand jury indicted three members of the legislature and an assistant sergeant-at-arms of the senate. One of these indicted was Dr. George B. Nye, who, as mentioned above, had been acquitted. The others were Senator Thomas A. Dean of Fremont and Stanley F. Harrison of Cleveland, an attaché of the senate.

On June 5 Representative Owen J. Evans, a Democrat of Canton, was indicted and shortly after the indictment had been found he confessed to having received a bribe of \$100 from L. C. Miller of Akron, a loan agent. He was fined \$500. He pleaded guilty with the understanding that he would go before the grand jury and tell all that he knew of the bribery scandals.

Up to the time of these revelations Governor Harmon had found it impossible to have passed the important measures which he advocated. After these scandals had been laid bare, however, most of the measures were passed without difficulty. They included a central board of control for State institutions, a measure for direct nomination of United States senators on the Oregon plan, a public utilities and an employers' liability act.

INDICTMENT OF GEORGE B. COX. On February 22 George B. Cox, the veteran Republican "boss" of Cincinnati and president of the Cincinnati Trust Company, was indicted on the charge of perjury. This charge was based on the fact that Cox, testifying before the grand jury on May 21, 1906, denied that he had ever received any of the illegal interest money collected by county treasurers. The grand jury charged that he had received \$48,500 and had therefore violated the statute against perjury in testifying as he did. A few days following a second indictment was reported for a similar transaction in which Cox was alleged to have received \$17,500. Following the first indictment Cox demanded an immediate trial and criticised Judge Gorman, a Democrat, who had instructed the grand jury, and also severely criticised the grand jury itself, for which he narrowly escaped trial for contempt of court.

A series of remarkable incidents followed in the attempt to bring Cox to trial. On March 31 Judge Gorman made an order for a change of venue to Clermont county. Judge Dickson, on April 7, disregarding the protest of Henry T. Hunt, prosecutor, held that this change was void and a usurpation of power. Mr. Hunt charged that Judge Dickson had been nominated and elected by Mr. Cox. On May 20 Judge Dickson quashed the two indictments and Mr. Cox was set free. The judge gave as his reason for this action that Cox's constitutional rights were violated when he was called before a grand jury in 1906 and forced to give the testimony in which it was charged in the indictments he had perjured himself. A writ of mandamus was thereupon issued against Judge Dickson in order to save one of the indictments. This was for the purpose of compelling Judge Dickson to permit the prosecutor to elect one of the two indictments on which to try Cox. The circuit court granted an alternative writ. This decision temporarily tied up the proceedings in Judge Dickson's court, but on June 16 final action was taken and the two indictments were finally quashed by Judge Dickson in spite of the action of Mr. Hunt in filing affidavits charging bias against the judge. Judge Dickson declared that the indictments against Mr. Cox had been faultily drawn.

ELECTIONS. There were no elections for State officers in 1911, but the municipal elections were of unusual interest. Mayors were elected in the larger cities, including Cincinnati, Columbus, Cleveland, and Toledo. In Cincinnati, Henry T. Hunt, the prosecutor who, as noted above, carried on the case against George B. Cox, was elected mayor of the city on the Democratic ticket, in spite of the efforts of the Republican machine, headed by Mr. Cox, to defeat him. Mr. Hunt was elected in the face of a letter written by President Taft supporting the Republican ticket. This action of the President, who had in previous years bitterly attacked Mr. Cox and the machine, was severely criticised. The Democrats were successful also in Columbus, where George J. Karb defeated Mayor George S. Marshall, a reform Republican, by a plurality of 6000 votes and a total vote of 43,000. In Toledo Brand Whitlock was elected mayor for the fourth time, with the entire Independent ticket which he represented. The Socialist vote in the city was large, reaching about 5000. The election in Cleveland resulted in the success of Newton D. Baker by a plurality of about 20,000. Mr. Baker had been city solicitor for ten years, most of the time under the late Tom L. Johnson as mayor, and was an advocate of the principles which made Mr. Johnson famous.

Perhaps the most notable feature of the election in the State was the success of the Socialists, who elected mayors in ten towns and cities, together with many members of city councils throughout the State. Delegates to the constitutional convention were chosen at this election. The convention is to meet at Columbus in January. A majority of delegates are pledged to adopt the initiative and referendum, upon which issue the campaign was fought throughout the State. The new constitution will be submitted to popular vote, perhaps in the fall of 1912.

OTHER EVENTS. There was dedicated at Cleveland in March the second of the great public buildings to be erected in that city, com-

posing the so-called group plan. The city centres at the public square and the area opening out of the square is to be remodeled at a total cost of \$30,000.00. Around a wide esplanade are to be grouped not only the municipal buildings, but also the county court house and federal building as well as the public library. The first of the group to be dedicated was the court house, the ceremony occurring October 15, 1910. The building was not occupied, however, until the fall of 1911. The corner-stone of the city hall, a third building of the group, was laid on July 22, 1911, the anniversary of the city's founding. The first of the group plan structures to be completed and fully occupied is the federal building, erected at a cost of \$4,000,000. This edifice contains the federal post office, court house, the customs house and internal revenue offices, and the offices of other government bureaus. The building contains mural decorations by Blashfield, Low, Millet, Cox, Zogbaum, and Crowninshield. The chief agency in bringing about this plan has been the Cleveland chamber of commerce.

A committee representing the progressive Republicans of the State met in Cleveland in November and adopted a platform which is to be the basis for the formation of the Progressive leagues throughout the State before January 1, 1912, when a State conference will be held at Columbus. While the platform supported no candidate for President or governor, it was known that members of the committee who drafted the resolution opposed the renomination of Mr. Taft. The platform demanded a downward revision of the tariff, the initiative and referendum, commended the short ballot, called for legislation to remedy trust evils, and advocated the direct election of senators, direct nomination and the continuance of the conservation policy, and an income tax.

LEGISLATION. The most important measure passed by the legislature was the utilities bill. This bill converts the State railway commission into a public service commission, broadening its powers so as to control not only railway and traction lines, but all other public utilities. The commission is especially empowered to regulate the issuing of securities, to value the physical properties of companies and corporations, and to decide just and reasonable rates for service. In making the valuation for rate-fixing purposes franchises and monopoly values are not to be considered, but only the value of the property used or useful for public convenience. Municipal councils are to retain the power of renewing rate contracts for utilities; while any referendum is prohibited in such contracts, either the people or the utility company may appeal to the State board. With regard to gas and electric light rates, joint State and local municipal control is provided. The local councils are to take the initiative in prescribing rates for periods not in excess of ten years. Street railways are excluded from the otherwise general State control. Other important bills passed at this session were the workmen's compensation act, the corrupt practices act, a limited initiative and referendum for cities, a nine-hour work-day for employed women, the requirement that agriculture shall be taught in all village and country schools, and a central board of control for nineteen State institutions, replacing nineteen separate boards of trustees

and placing the subordinate employees of these institutions under the civil service.

STATE OFFICERS. Governor, Judson Harmon; Lieutenant-Governor, Hugh L. Nichols; Secretary of State, Charles H. Graves; Treasurer, E. M. Fullington; Auditor, David S. Creamer; Attorney-General, Timothy S. Hogan; Adjutant-General, Charles C. Weybrecht; Commissioner of Insurance, Edmond H. Moore; Superintendent of Education, Frank W. Miller—all Democrats, except Fullington.

JUDICIARY. Supreme Court: Chief Justice, William T. Spear; Associate Justices, James G. Johnson, Maurice H. Donohue, John A. Shauck, William Z. Davis, James L. Price; Clerk, Frank McKean—all Republicans, except Johnson, Donohue, and McKean.

STATE LEGISLATURE, 1911. Republicans, Senate, 15, House, 49, joint ballot 64; Democrats, Senate 19, House, 70, joint ballot 89; Democratic majority, Senate 4, House 21, joint ballot 25.

The representatives in Congress will be found in the article UNITED STATES, *Congress*.

OHIO STATE UNIVERSITY. An institution of higher learning at Columbus, O., founded in 1870. The number of students enrolled in the various department of the university in 1910-11 was 3439. The teaching staff numbered 241 men and 26 women. The faculty lost by death Nathaniel Wright Lord, professor of metallurgy and mineralogy and director of the school of mines and Benjamin Franklin Thomas, professor of physics. William McPherson, professor of chemistry, was appointed dean of the graduate school. During the year a new library building was erected at a cost of \$250,000, and an archaeological and historical association building at a cost of \$100,000. The centre of student social life and activities, known as the "Ohio Union," built and equipped at a cost of \$100,000, was also opened at the beginning of the new year. The graduate school was reorganized and enlarged to include work in the seven colleges. The library contains about 100,000 volumes. The president is W. O. Thompson, D. D., LL. D.

OHIO UNIVERSITY. An institution of higher learning founded in 1804 at Athens, Ohio. The number of students enrolled in all departments of the university in 1900-11 was 1678. The faculty numbered 75. In June, 1911, eight new members were added to the faculty. No notable gifts were received during the year. The productive funds amounted to \$1,214,813, and the annual income to about \$200,000. The library contains about 35,000 volumes. The president is Alston Ellis, Ph. D., LL. D.

OHIO WESLEYAN UNIVERSITY. An institution of higher learning at Delaware, O., founded in 1842. The students enrolled in the various departments of the university in 1911-12 numbered 1345. The faculty numbered 65. There were no notable changes among the members of the faculty during the year. A movement has been in progress for a year or more to increase the endowment of the university. During 1910-11 there was pledged an additional endowment of \$500,000, of which \$125,000 was placed by the General Education Board. Of this endowment fund, \$150,000 has been paid. The present productive funds of the university amount to \$540,000. From this is received about \$27,000 annually. The total income in 1910-11 was \$111,500. The library contains

about 60,000 volumes. The president is Herbert Welch, D. D.

OIL BURNERS. See NAVAL PROGRESS, *Propulsion*.

OIL ENGINES. See NAVAL PROGRESS, *Propulsion*, and INTERNAL-COMBUSTION ENGINES.

OKLAHOMA. POPULATION. The Thirteenth Census showed a population in 1910 of 1,647,155, as compared with 398,331 in 1900. The latter figure includes Oklahoma and Indian Territory. The principal cities with their population in 1910 are as follows: Oklahoma City, 65,205; Muskogee, 25,278; Tulsa, 18,182; Shawnee, 12,474; Chickasha, 10,320; Guthrie, 11,654.

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1911. On that date farms numbered 190,192, compared with 108,000 in 1900. The land in farms was 28,850,353 acres, compared with 22,998,338 acres in 1900. The improved land in farms was 17,551,337 in 1910, compared with 8,574,187 in 1900. The average acreage per farm was 151.7, compared with 212.9 in 1900. The value of farm property, including lands, buildings, implements and machinery, was \$918,198,882 in 1910, compared with \$277,525,433 in 1910. The average value of all property per farm was \$4828 (\$2570 in 1900). The average value of land per acre was \$22.49 (\$6.50 in 1900). Of all the farms in the State 86,055 were operated by owners and managers, 104,137 by tenants. Of the farms operated by owners, those free from mortgage were 46,889, those under mortgage 36,036. The native white farmers numbered 161,773, foreign-born whites 7748, negro and other non-white 20,871. The total value of cattle of all kinds, poultry, and bees was \$152,432,792. The cattle numbered 1,953,560, valued at \$43,187,601; horses and colts 742,959, valued at \$63,651,631; mules 257,076, valued at \$28,618,224; swine 1,839,030, valued at \$11,907,641; sheep and lambs 62,472, valued at \$253,864. Poultry of all kinds numbered 8,501,237, valued at \$3,713,943. The acreage, production, and value of principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	5,675,000	36,888,000	\$25,822,000
.....1910	5,735,000	91,760,000	46,798,000
Wheat ....1911	1,122,000	8,976,000	8,258,000
.....1910	1,567,000	25,542,000	22,222,000
Oats .....1911	909,000	8,181,000	3,927,000
.....1910	699,000	25,514,000	9,440,000
Rye .....1911	4,000	38,000	40,000
.....1910	4,000	55,000	45,000
Potatoes ..1911	30,000	540,000	670,000
.....1910	32,000	1,920,000	1,920,000
Hay .....1911	810,000	a 648,000	5,184,000
.....1910	900,000	945,000	7,938,000
Cotton ...1911		c 915,000	

a Tons. b Bales.

MINERAL PRODUCTION. The coal production of the State in 1910 was 2,646,226 short tons, valued at \$5,867,947, a decrease of 473,151 short tons, as compared with the tonnage for 1909. Oklahoma was one of the States most seriously affected by the prolonged strike of 1910. The suspension of mining in the Southwestern States gave exceptional opportunity for coal from Colorado, New Mexico, and Alabama to make heavy inroads upon the markets naturally tributary to Oklahoma, and the adjoining States. The most serious result of the strike, however, was the migration of the miners to other States

where mining was not interrupted. As a consequence, when mining was resumed, the supply of labor was entirely inadequate. The number of men employed in the coal mines of the State in 1910 was 8657. These worked on an average of 144 days. The number of men on strike was 8213, and the average time lost by each man was 152 days.

In the production of petroleum Oklahoma ranks second, being surpassed only by California in 1910. From the fields of the State were taken 52,028,718 barrels, as compared with 47,859,218 in 1909. According to estimates of the United States Geological Survey, the production of 1911 exceeded that of 1910. In the Kansas-Oklahoma field the fields of Oklahoma furnished by far the largest quantity. This authority estimated the production to be about 56,000,000 barrels in 1911. Several new wells, producing large quantities of oil, were opened during the year.

The State produces a small amount of gold and silver. The gold production in 1911 was 1485 fine ounces, valued at \$30,698. The production of silver was 168,245 fine ounces valued at \$92,535.

EDUCATION. The total school population in the State (between the ages of 6 and 21 years) in 1911 was 566,852. Of these 509,577 were white and 470,275 were colored. The total enrollment in the public schools was 443,227, of whom 405,873 were white and 37,354 were colored. The white male teachers numbered 2874 and the white female teachers, 6350. The colored male teachers numbered 268 and colored female, 528. The total expenditures for the year for education amounted to \$6,759,412.

POLITICS AND GOVERNMENT

The State had little political history of importance in 1911. The legislature met and passed a number of important measures which are noted in the paragraph *Legislation* below. On February 9 a decision of the Supreme Court of the State declaring that the act of the legislature which made Oklahoma City a permanent capital was within its powers, settled the contest which began in 1910 between Guthrie and Oklahoma City as to which should be the seat of the State government. The constitution of the State made Guthrie the capital until 1913, but an election was held on June 11, 1910, providing for the removal of the capital to Oklahoma City. This election was held invalid by the State Supreme Court on the ground that the title of the ballot did not conform to the law. Thereupon Governor Haskell called a special session of the legislature to remove the capital to Oklahoma City. The decision of the Supreme Court on February 9 finally settled the question.

On March 29 the United States Circuit Court at St. Louis declared the two-cent passenger law of the State unconstitutional.

On April 3 two important decisions were rendered by the United States Supreme Court relating to the enforcement of the laws forbidding the sale of intoxicating liquors in the State. The court held that it could not be invoked to enforce the prohibition laws of the State. One of these cases was against the Atchison, Topeka & Santa Fe Railway Company, and about twenty other common carriers including railways and express companies, to

enjoin them from interfering with the enforcement of the State's prohibition law. The other case was a petition for a writ of prohibition to prevent the federal courts for the district of Oklahoma from issuing writs of injunction on the application of the railways and the express companies to enjoin the Oklahoma State officers from enforcing writs of search and seizure and thereby interfering with interstate commerce. The court held that a writ of prohibition was seldom issued by the Supreme Court and when issued is a matter entirely within the discretion of the court. In both these cases the opinions were unanimous.

There were no elections in the State during the year.

LEGISLATION. The important measures passed in the legislative session in 1911 include the following: Measures were passed relating to the organization of trust companies and the existing law was amended in respect to the amount of capital stock that must be subscribed in cities of various populations. The office of State fire marshal was created, with supervisory powers over all fire chiefs and mayors of towns and cities in connection with the management of fire departments. His duties are chiefly to investigate the causes of fire, making an examination of places considered dangerous. Several important measures relating to the regulation and control of the sale of liquor under the prohibition law of the State were enacted, and provision was made for the use of liquor for medicinal and scientific purposes. The law also imposes heavy additional penalties in cases of second and third convictions, and imposes restrictions upon common carriers handling liquors. The governor is made the agent to carry out these additional restrictions, and added authority to make searches and seizures is given to the State officers. An act relating to the admission of foreign corporations to do business in the State was amended by requiring that the amount of paid up capital shall be \$500,000. A Supreme Court commission of six members was created. This commission is to assist the Supreme Court in making findings, submitting opinions, etc. There were important enactments relating to the pure food law, an act providing for the establishment of municipal libraries, and various acts relating to schools for the blind, deaf, orphans, and indigents.

STATE OFFICERS. Governor, Lee Cruise; Lieutenant-Governor, J. J. McAlester; Secretary of State, Benjamin F. Harrison; Treasurer, Robert Dunlop; Auditor, Leo Meyer; Attorney-General, Charles West; Commissioner of Insurance, P. A. Ballard; Commissioner of Education, R. H. Wilson; President Board of Agriculture, G. T. Bryan—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, John B. Turner; Associate Justices, Mathew J. Kane; Robert L. Williams, Jesse J. Dunn, and Samuel W. Hayes; Clerk of the Court, W. H. L. Campbell—all Democrats.

STATE LEGISLATURE, 1911. Republicans, Senate 15, House 33, joint ballot 48; Democrats, Senate 29, House 76, joint ballot 105; Democratic majority, Senate 14, House 43, joint ballot, 57.

The representatives in Congress will be found in the article UNITED STATES, *Congress*.

OKLAHOMA CITY. See OKLAHOMA.

OKLAHOMA (SHIP). See BATTLESHIPS.

OLD-AGE PENSIONS. The movement for

the establishment of old-age pensions which has been going on in numerous countries in the past few years continued to make progress during 1911. In some cases, as in the German system (as to revision of which see *WORKINGMEN'S INSURANCE*), old-age insurance is a part of a general system of insurance for the industrial population. In England and many other countries, on the other hand, the old-age pension system is separately administered. In addition to pensions for industrial workers there has been an extension also of the old-age pension idea to new classes of civil service employees. In the United States the movement has taken the form of the establishment of retiring pensions by corporations for their workers, and by cities, States, and the nation for civil-service employees. Old-age pension systems are classed as contributory and non-contributory. Under the contributory plan, which is by far the more general, the fund from which the pensions are paid is contributed in part by employers and in part by employees, usually with a supplementary contribution by the State. Even the majority of schemes for civil service employees of the government are on the contributory basis. Contributory plans are compulsory or not, according as the class affected is compelled or not compelled to enter the scheme. The non-contributory plan, the most conspicuous example of which is the English system, is generally favored by workers, but is still opposed by a very powerful body of opinion which fears the gradual pauperization of workers who receive pensions which they have not assisted in providing.

MASSACHUSETTS. The investigation of old-age pensions was begun in Massachusetts in 1907. Following the report of a commission of investigation submitted in January, 1910, laws were passed providing for the establishment of voluntary, coöperative, retirement, annuity pension systems by the coöperation of employers and employees; and also authorizing cities and towns to establish such systems for their civil service employees. In 1911 an act similar to this latter was passed applying to the public civil service employees of the State. This was founded on a strictly actuarial basis and is in fact a partial contributory old-age pension plan. Persons employed by the commonwealth at the time the act went into effect may participate in the plan at their pleasure, but all subsequent employees are required to do so, except that any officer elected by popular vote is excluded from the provisions of the act. The public employees are virtually formed into a mutual insurance association. Any member who reaches the age of 60 and has been in the continuous service of the State 15 years may retire or be retired by the Board of Retirement. Retirement is compulsory at the age of 70. Anyone completing 35 years of continuous service may retire or be retired at any age. The Board of Retirement having charge of the administration of the system consists of the State treasurer, a representative of the employees, and one chosen by these two or appointed by the governor. This board determines the percentage of wages that the employees must contribute to the insurance fund, but such percentage shall not be less than one per cent. nor more than five per cent. Assessments must be made regularly. Upon retirement an annuity equal to double the amount which the

recipients' payments would provide is granted, the State treasury paying the second half.

NEW JERSEY. Following the impetus given to the public old-age pension movement in the United States by Massachusetts, the State of New Jersey appointed a commission in 1910 to investigate the subject. The report of that commission was followed in 1911 by a law directing the governor to appoint five persons to act as a committee for investigation and the drafting of a bill on industrial old-age pensions. This commission is also to act as a bureau of information and assistance for employers and employees who consider the establishment of insurance systems. Both employers and employees must be represented on the commission which will have a paid secretary. The preamble of this resolution said: "The so-called civilized industrialism of our day can be subject to no stronger criticism than the charge, fortified by universal experience, that the men and women whose productive energy has contributed so much to our wealth, progress, and development, leading simple, inexpensive lives, become, in their declining years, powerless, principally because they are penniless."

NATIONAL. The agitation by the Retirement Association, including a large proportion of the civil service employees of the United States government, which led to the introduction in Congress of the Goulden bill in 1910 was still being maintained at the close of the year. This bill set forth a non-contributory plan for the retirement of employees at the age of 60, after 30 years of service, or at the age of 65 after 25 years of service. In one of his messages to Congress in December President Taft said: "I am very much opposed to a civil pension system that involves no contribution from the employees; but the crying necessity for some such contributory system, with possibly a preliminary governmental outlay, in order to cover the initial cost and to set the system going at once while the contributions are accumulating, is manifest on every side. Nothing will so much promote the economy and efficiency of the government as such a system."

CORPORATION PLANS. So far as employees are concerned the principal old-age pension benefits in the United States have been provided by railroad, industrial, and commercial corporations. The Massachusetts commission on old-age pensions, which reported in 1909, obtained information concerning 50 of these corporation pension schemes, 28 of which were maintained by railroad companies, and 22 by industrial or commercial establishments. Practically all of the principal railroads and most of the very large industrial corporations have now established retiring pensions. Among the companies which have recently established pensions for aged employees are: the United States Steel Corporation, the Standard Oil Company, the National Harvester Company, Armour & Company, and the American Sugar Refining Company.

Practically all of these corporation plans are non-contributory; the amount of the pension is proportionate to the length of service, that is, it is equivalent to one per cent. of the average annual wages or salary during 10 years preceding retirement, multiplied by the number of years of service; retirement usually takes place at the age of 65 or 70 for men

and 60 for women; retirement may also take place upon the completion of 30 years of continuous service in the case of men and of 25 years in the case of women without regard to age; the employees may retire voluntarily or at the request of the company, the age of compulsory retirement being five or ten years greater than that of voluntary. These plans usually include also a system of pensions for permanent disablement.

The reason why these retirement pensions are provided without contributions from the employees is because this plan is generally believed to be the better business policy. Humanitarian motives have no doubt stimulated the old-age pension movement, but so far as private employers are concerned the fundamental reasons are economic. A retirement system eliminates the waste involved in retaining worn-out and inefficient workers; it promotes a greater degree of efficiency throughout the entire ranks of the workers by increasing the opportunities for promotion all along the line. The chief effect, however, is the stimulation of a sentiment of loyalty on the part of the working force; the increased volume and quality of output more than offsets the cost of the system. An almost equally cogent reason is that a non-contributory system can be made to act as a powerful preventive of strikes. Employees under that system cannot afford to jeopardize their claim on the pension fund. An employee who leaves loses this prospective benefit. It is this feature to which organized labor most vigorously objects, since non-contributory pension schemes chain the workers to their jobs. Workers are thus forced to be well-behaved and docile however unjust they may feel some conditions of employment to be. Under a contributory pension system, on the other hand, no such obligation on the part of the worker exists, for, upon leaving the service, he draws out the amounts of the accumulated contributions which he has made to the pension fund. Another objection to the non-contributory plan which is often made is that it almost certainly depresses the wage level. It may not actually bring about a reduction of wages, but it will almost inevitably prevent an advance in wages in a normal manner.

The plan of the American Sugar Refining Company was placed on a non-contributory basis ostensibly because a contributory plan would have been a burdensome tax on wages. This reason was not believed satisfactory by many who held that if wages paid are so low that employees cannot be expected to save anything then wages should be raised. For carrying out its plan the Sugar Trust set aside \$300,000 at once with provision for further additions in the future. The plan applies to 7500 employees. The maximum pension will be \$5000 a year and the minimum \$20 a month. The maximum is practically the same as that in the Steel Corporation and the Harvester Company plans, but the minimum in the former is \$12 a month and in the latter \$18 a month. The minimum of \$12 is the rule for these corporation plans. The Steel Corporation set aside \$8,000,000 for the pensioning of aged and permanently disabled employees. This was combined with the \$4,000,000 fund created by Mr. Andrew Carnegie for a similar purpose.

The railroad plans vary more than do those of industrial corporations. The years of consecutive service required vary from 10 years on

the New York Central lines, the Canadian Pacific, the Atlantic Coast Line, and the Illinois Central to 30 years on the Pennsylvania Railroad. The age limit for new employees is 35 on about one-half of the roads and 45 on the other half, though the New York Central has none. The age of compulsory retirement is usually 70 and for voluntary retirement 65 for about two-thirds of the roads and 60 or 61 for the others. The amount annually set aside for the pension fund varies of course with the number of employees and other conditions. It is \$600,000 for the Pennsylvania Railroad, besides \$222,500 for the Pennsylvania lines west of Pittsburgh, \$450,000 for the New York Central, \$200,000 for the Chicago & Northwestern; some roads set no limit; but it is only \$18,000, or about \$1 per employee for the Atlantic Coast Line. The number of pensioners varies from 3160 for the Pennsylvania, 800 for the New York Central, 622 on the Baltimore & Ohio, and so on down to 13 for the Oregon Railroad & Navigation Company.

GREAT BRITAIN. The old-age pension law enacted in 1908 was extended in scope on January 1, 1911, by the removal of the disqualification that had attached to persons receiving poor relief since January, 1908. The number thus previously excluded who now began to receive pensions was 122,415. Of these 86,000 were women and 36,000 men; and of the total about 117,338 had been in receipt of outdoor relief. It was estimated that the transfer of these persons to the old-age pension fund would effect a saving of \$110,000 per week in the poor rates. The total expenditure for old-age pensions in 1911 was approximately \$9,700,000 or \$48,500,000. It was estimated that the expenditure for 1911-12 would be \$12,350,000 or \$61,600,000. The total number in receipt of pensions at the beginning of the year ending March 31, 1911, was 699,352, distributed as follows: 638,147 received 5s. (\$1.25) per week; 22,870 received 4s.; 22,239 received 3s.; 10,536 received 2s.; and 5560 received 1s. There were 441,489 pensioners in England and Wales; 76,889 in Scotland; and 180,974 in Ireland. The average weekly number receiving pensions during the first six months of 1911 was 901,605, an increase of about 30 per cent. over the preceding year. It was generally expected that the age limit will be reduced from 70 years to 65; the cost of this change was estimated by Mr. Lloyd-George at £7,750,000.

OLDENBURG. See GERMANY.

OLDENBURG (SHIP). See BATTLESHIPS.

OLIN, WILLIAM MILO. An American public official, died April 15, 1911. He was born in Warrenton, Ga., in 1845 and was educated in the common schools of Worcester and Grafton, Mass., and the high school of Leicester, Mass. He served in the Civil War from 1862 to 1865 and from 1865 to 1879 was reporter and editor of the *Boston Daily Advertiser*. After serving as secretary to several State and national officials he was, in 1890, elected Secretary of State of Massachusetts and continued in this office until the time of his death. He was a prominent member of the Grand Army of the Republic and of several other patriotic and historical societies.

OLIVER, CHARLES AUGUSTUS. An American ophthalmologist, died April 8, 1911. He was born in Cincinnati in 1853 and graduated from the University of Pennsylvania in 1876. He

studied medicine and became prominent in his profession. He was surgeon to Wills Eye Hospital, Philadelphia, and the Philadelphia Hospital. He was a member of several learned societies. He was the author of *Correlation Theory of Color Perception*; and *Ophthalmic Methods in Recognition of Nerve Diseases* (1895) and was co-author of *Text-Book of Ophthalmology*. He aided in editing several important works on diseases of the eyes and contributed largely to medical magazines.

OLIVES. See HORTICULTURE.

OMAHA. See NEBRASKA, and MUNICIPAL GOVERNMENT.

OMAHA TRIBE. See ANTHROPOLOGY.

OMAN. An independent Mohammedan state in southeastern Arabia, with an estimated area of 82,000 sq. miles; population, about 500,000, chiefly Arabs. Capital, Muscat, with 25,000 inhabitants. Imports (1910-11), Rs. 5,917,238, (1909-10, Rs. 8,305,863), consisting mainly of cereals, clothing, and arms and ammunition. Exports, Rs. 4,065,512 (1909-10, Rs. 4,163,707); the main articles being dates (Rs. 1,978,115), pearls (Rs. 532,000), limes (Rs. 80,326), mother-of-pearl (Rs. 50,250), fruits (Rs. 47,720), fish (Rs. 46,620), and hides and skins (Rs. 40,306). Vessels entered (1910-11), 262, of 355,325 tons. Transport is by pack animals. The sultan (1911, Seyyid Faysal bin Turki) receives a subsidy from the government of India. Maj. A. P. Trevor was the British political agent in 1911.

ONTARIO. A province of the Dominion of Canada. Area, 260,862 sq. miles; population (final returns, census of June 1, 1911), 2,523,208. Capital, Toronto (population, 1911 preliminary, 376,240). The province is administered by a lieutenant-governor (in 1911, appointed September 22, 1908, John Morison Gibson), appointed by the governor-general of Canada. He is aided by an executive council (responsible ministry) and a unicameral legislative assembly of 106 members. Premier (1911), Sir James P. Whitney. See CANADA.

ONTARIO LIBRARY ASSOCIATION. See LIBRARY PROGRESS.

OPERA. See MUSIC.

OPIMUM. Customs house records show that the amount of opium and cocaine imported into this country vastly exceeds the quantity required for legitimate purposes. Unquestionably the excess is used for the gratification of drug habits and the creation of new victims. The suppression of this revolting traffic can be accomplished only by rigid regulation of the legitimate trade.

The Boylan bill to prohibit the sale of hypodermic syringes or needles at retail without an order from a physician or veterinary surgeon, passed the New York legislature in 1911 and became a law. The measure is an effort on the part of the State of New York to control the growing use of morphine and cocaine (see COCAINE HABIT). The availability of the hypodermic syringe has been a factor in the widespread use of morphine, cocaine, etc., and a good many hypodermic syringes and needles are used to give morphine and cocaine in a harmful way. The fact that drug habitues can obtain syringes and needles through the mails from druggists in other States is the weak point in all State legislation designed to control the use of habit-forming drugs. This situation will probably be met by appropriate federal legislation pro-

hibiting interstate commerce in hypodermic syringes, needles, and habit-forming drugs except by responsible and properly authorized individuals.

After the close of the international opium conference at Shanghai in 1909, over which Bishop Brent of the Philippine Islands presided, Dr. Hamilton Wright of Maine, who had been active in the proceedings, was commissioned by Secretary Knox to gather materials for the better knowledge of the situation as to opium and other habit-forming drugs. Dr. Wright's investigations brought to light some rather startling facts. The international opium conference was originally devised to prevent the exploitation of the Oriental peoples, and particularly to save the Chinese and Filipinos from those who were willing to make money out of them by the sale of opium; but Dr. Wright found that the people of the United States are consuming as large a per capita amount of habit-forming drugs as the Chinese. Our consumption of opium is nearly 500,000 pounds, while it is calculated that less than one-seventh of this amount would supply all medical requirements. It is also alleged that we are using nearly 200,000 ounces of cocaine, and that one-twelfth of this would be quite sufficient for all legitimate needs; so that while we are endeavoring to save the Orientals from exploitation, we are confronted with the same problem at home. See CHINA, paragraph *Opium Trade*.

ORANGE FREE STATE. (Formerly the ORANGE RIVER COLONY.) A province of the Union of South Africa (q. v.). Provincial capital, Bloemfontein.

AREA, POPULATION, ETC. Area (estimate), 50,392 sq. miles; population, 1904, 387,315; census of 1911, 526,906 (175,435 white, 351,471 colored). Bloemfontein had (1911) 26,929 (14,760 white, 12,169 colored) inhabitants; Kronstadt (1904), 5797; Harrismith, 5306; Ladybrand, 3848. Education is generally compulsory, but fees are charged. English and Dutch are taught, and about 19,000 pupils are enrolled in the various government and government-aided schools.

INDUSTRIES. Stock-raising is the principal industry; but other branches of agriculture are developing. Livestock (1909): 133,296 horses, 724,542 cattle, 7,621,162 sheep, 835,589 goats, 53,988 hogs. Under wheat (1909), 162,449 acres (yield, 701,519 bu.); oats, 133,180 acres and 1,566,993 bushels; barley, 7076 acres and 90,715 bushels; under tobacco, 1729. Coal mined (1908-9), 470,591 tons, valued at £125,627; diamonds, 654,319 carats, £1,048,607; salt, 1456 tons, £17,100.

COMMERCE, FINANCE, ETC. The trade statistics given in the following table are for calendar years and inclusive of specie; the financial, for fiscal years ending June 30 the next year:

	1907	1908	1909
Imports	£3,672,591	£2,945,860	£3,662,696
Exports	3,751,049	3,558,373	4,777,126
Revenue	740,367	915,286	952,860
Expenditure	733,233	952,513	957,741
Debt			400,000

Exclusive of specie, Great Britain supplied (1909) imports valued at £1,300,795. The total exports are detailed thus: South African produce, £3,166,420; reexports, £137,049; diamonds, £1,386,908; by post to other colonies, £13,916; specie, £72,833.

Railways, 1026 miles; telegraph lines, 6958; telephone lines, 555. The provincial government is in the hands of an administrator, (1911, A. E. W. Ramsbottom), aided by a provincial council and an executive committee.

ORANGES. See HORTICULTURE.

ORCHESTRA, SYMPHONY. See MUSIC.

ORE DEPOSITS. See GEOLOGY.

OREGON. POPULATION. The Thirteenth Census showed a population in the State in 1910 of 672,765, as compared with 413,536 in 1900. The principal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Portland, 207,214 (90,426); Salem, 14,094 (4248); Eugene, 9009 (3236); Astoria, 9599 (8381).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 45,502, as compared with 35,837 in 1900. The land in farms was 11,685,110 acres, as compared with 10,071,328 acres in 1900. The improved land in farms was 4,274,803 acres, compared with 3,328,308 acres in 1900. The average acreage per farm in 1910 was 256.8, compared with 281 in 1900. The total value of farm property, including land, buildings, implements, and machinery, domestic animals, poultry, and bees, was \$528,243,782, compared with 172,761,287 in 1900, an increase of \$355,482,495 or 205.8 per cent. The farms operated by owners and managers numbered 38,643; those operated by tenants, 6859. Of the farms operated by the owners, those free from mortgage numbered 24,855; those mortgaged, 12,632. The native white farmers numbered 35,819; foreign-born white, 9056; negro and other non-white, 697. Of the non-white, 452 were Indians, 83 Japanese, 65 Chinese, and 27 negroes. The total value of the domestic animals, poultry, and bees in 1910 was \$59,461,828, compared with a value in 1900 of \$33,917,048. The cattle numbered 725,255, valued at \$17,570,686; horses and colts, 271,708, valued at \$25,181,143; mules, 9927, valued at \$185,788; swine, 217,577, valued at \$1,570,949; sheep and lambs, 2,699,135, valued at \$12,213,942. Poultry of all kinds numbered 1,823,680, valued at \$1,067,743. The acreage, production, and value of the principal crops will be found in the following table for 1910 and 1911:

	Acreage	Prod., bu.	Value
Corn .....1911	20,000	570,000	\$456,000
.....1910	18,000	459,000	367,000
Wheat ....1911	796,000	16,726,000	12,545,000
.....1910	719,000	15,853,000	13,317,000
Oats .....1911	359,000	12,457,000	5,481,000
.....1910	355,000	12,248,000	5,767,000
Rye .....1911	18,000	351,000	316,000
.....1910	15,000	226,000	226,000
Potatoes ..1911	46,000	5,980,000	4,007,000
.....1910	42,000	410,000	3,087,000
Hay .....1911	452,000	a 949,000	9,110,000
.....1910	439,000	922,000	11,156,000

a Tons.

MINERAL PRODUCTION. The production of coal in the State is small, and the amount mined in 1910 showed a decrease from the production of 1909. In the former year there were produced 63,241 tons, as compared with 87,276 tons in 1909. The decrease is due to the great increase in the production of petroleum in California and its use for fuel for domestic needs, as well as for railroads and manufacturing.

The State produces a small amount of gold and silver. In 1910 the gold production was 32,870 fine ounces, valued at \$697,488. The silver output was 35,978 fine ounces, valued at \$19,428. The gold production in 1911 was 28,988 fine ounces, valued at \$509,235. The silver production was 69,116 fine ounces, valued at \$38,014.

POLITICS AND GOVERNMENT

In the general election of November, 1910, the electors of Oregon enacted under the initiative four important measures, as follows: Presidential preference, single tax, employers' liability, and three-fourth jury verdict.

The presidential preference law gives to each voter in the primary election the opportunity of expressing his preference as to candidates of his party for President and Vice-President; permits the voters in the political parties (Democrat and Republican, only) to elect delegates in the primary election to their national political conventions, and also to nominate in the primary election and elect in November candidates for presidential electors. This law will be tried out for the first time in this year's elections. The primary nominating election will be held April 19, 1912, and the general election in November.

The single tax measure consisted of a constitutional amendment which authorizes each county in the State to prescribe its own method of taxation. It amounts to submitting the question of single tax in each county. This will be done at the general election in several of the principal counties of the State. In the same election, another constitutional amendment proposed by the legislature will be submitted for the repeal of the original single tax amendment. The single taxers and the anti-single taxers are both well organized and are conducting vigorous campaigns both for and against the Henry George plan.

It has not been noticeable just what has been the effect of the operation of the employers' liability law. This is a drastic measure, prepared and submitted to the people by organized labor after it had sought the enactment of a less objectionable bill by the legislature and met defeat. It is not believed the industrial activity of the State has been affected any more than would result from an increase in the rates for indemnity insurance which has been made.

The fourth law, enacted by popular vote, permits a three-fourths jury verdict in civil cases. In its operation, it is generally believed that this statute has assisted in a measure to relieve a badly congested condition in the courts and at the same time has reduced the number of mis-trials and appeals to the State Supreme Court.

Most important of the measures that will be submitted in the general election in November, 1912, as relating to the politics of the State, is a constitutional amendment extending the right of suffrage to women. The same amendment has been submitted under the initiative in three preceding elections and defeated each time with increased majorities. There is a possibility that it will be adopted in 1912. The women have formed an effective statewide organization in which the services of many of the prominent men and leading politicians of the State have been enlisted. There is in the State an anti-

suffrage organization which rendered much aid in defeating the issue in former campaigns.

LEGISLATION. Important measures passed at the legislative session of 1911 include the following: The constitution was amended so that now in civil cases three-quarters of the jury may render a verdict instead of twelve. A measure was also passed providing for the direct vote of the people upon the candidates for President and United States senators. The presidential electors are nominated by the people. The white slave traffic is made a felony. A measure was passed prohibiting unjust discrimination and rebating by railroads and other common carriers. A parole board was created and given control of all prisoners serving indeterminate sentences. A State board of fish and game commissioners was established, as well as a State banking department which has charge of the laws relating to the banks and banking business of the State. A joint resolution was passed recommending for adoption at the November election of 1912 an equal suffrage amendment to the constitution. See **CHILD LABOR**; and **ARBITRATION AND CONCILIATION, INDUSTRIAL**.

STATE OFFICERS. Governor, Oswald West, Democrat; Secretary of State, F. W. Benson, Republican; State Treasurer, Thomas B. Kay, Republican; Superintendent of Public Instruction, L. R. Alderman, Republican; Adjutant-General, W. E. Finzer, Democrat; Attorney-General, A. M. Crawford, Republican; Commissioner of Insurance, S. A. Kozer, Republican.

SUPREME COURT. Chief Justice, Robert Eakin; Justices, Thomas A. McBride, Frank A. Moore, Henry J. Bean, and George H. Burnett; Clerk, J. C. Moreland—all Republicans.

STATE LEGISLATURE, 1911: Republicans, Senate, 27; House, 58; joint ballot, 85. Democrats, Senate, 3; House, 2; joint ballot, 5. Republican majority, House, 56; joint ballot, 80.

The representatives in Congress will be found in the article **UNITED STATES, Congress**.

OREGON, UNIVERSITY OF. An institution of higher learning at Eugene, Ore., founded in 1876. The total enrollment in 1910-11 was 1482. Of this number 514 were in the department of science and arts; 185 in the school of law; 138 in the school of engineering; 209 in the school of music; 378 in the correspondence school; 74 in the school of medicine, and 9 in the graduate school. Among the changes in the faculty during the year were the following: Prof. I. M. Glen, dean of the school of music, resigned the chair to accept a similar position in the University of Washington; Dr. H. D. Sheldon, dean of the school of education, went to the University of Pittsburgh. Dr. Edmund S. Conklin of Clark University was appointed head of the department of psychology, and Montana Hastings of Columbia University, assistant professor in the department of education. During the year the legislature appropriated half a million dollars for new buildings and equipment for the university. This appropriation, however, was held up by referendum petitions, and a suit was instituted to declare the petitions void on account of fraud in securing the signatures. The library of the university contains about 30,000 volumes. The president is Prince L. Campbell, B. A.

ORION. See **NAVAL PROGRESS, Guns and Gunnery**, and **BATTLESHIPS**.

ORNITHOLOGY. **BIRD PROTECTION.** No very noteworthy contributions to ornithology seem to have been made during the year. The Audubon and other societies for bird protection carried on their work with a fair degree of success. It was reported that the countries of Europe are showing more interest in this subject, Hungary having a model law. Italy, on the other hand, is the least interested, and an amount of song bird shooting is done there that would not be tolerated in any other country. Venezuela and Brazil have also begun to legislate on this subject, which is the more important since Venezuela has been the source of a large part of the aigrettes sold in the North. Statements in the public press that these are collected with no cruelty to the adult birds are said to have been untrue, and were probably inspired by dealers in these articles.

PASSENGER PIGEON. A reward of \$1000 for the discovery of an undisturbed nest of the passenger pigeon was not claimed, and it is probable that in the wild state the bird is extinct. The only known living specimen is in the Zoölogical gardens at Cincinnati.

EXPEDITIONS. Important expeditions of the year were those of Mr. and Mrs. Beebe through parts of Asia in search of material for a monograph of the pheasants, and of Chapman to South America to collect material for more habitat groups for the American Museum of Natural History.

COLOR CHANGE IN LINNETS. Grinnell in *A Problem in Speciation* discussed a peculiar color change shown in the Hawaiian linnets, *Carpodacus frontalis*, which were introduced into the Islands about forty years ago. In the United States these are usually red, with occasional yellow, orange, and red with yellow or orange intermixed. All male linnets collected in Hawaii were of the yellow or orange type. Grinnell thought this color change was not due to climate, but to change of habitat. The birds were closely inbred until (possibly) the enzyme produced was not able to carry the oxidation of tyrosin in the color production beyond the yellow, or at most the orange stage.

ORT, SAMUEL ALFRED. An American theologian and educator, died January, 1911. He was born in Lewistown, Pa., in 1843, and graduated from Wittenburg College in 1863. In 1865 he was ordained to the Lutheran ministry. He was pastor in Louisville, Ky., from 1874 to 1878 and from 1878 to 1880 in New York City. From 1880 to 1910 he was professor of Christian theology in Wittenburg Theological Seminary. He was president of the Wittenburg College 1882-1900. From 1887 he was president of the general synod of the Lutheran Church.

OSBORNE DECISION. See **TRADE UNIONS.**

OSGOOD, HOWARD. An American theologian and educator, died November 28, 1911. He was born at Plaquemine Parish, La., in 1831. He studied at Harvard College from 1846 to 1849. Having studied theology he was ordained to the Baptist ministry in 1856. For two years he was pastor at Flushing, L. I., and for six years, from 1860 to 1866, in New York City. He became professor of Hebrew in the Crozer Theological Seminary in 1868, holding the chair until 1874, when he went to the Rochester Theological Seminary as professor of Old Testament literature. He resigned this chair in 1901 and retired from active work. From

1874 to 1901 he was one of the American company for the revision of the Old Testament.

OSTFRIESLAND. See **BATTLESHIPS.**

OSTIA. See **ARCHÆOLOGY.**

OTTOMAN EMPIRE, THE. See **TURKEY.**

OVOGAL (ALBUMEN CHOLICUM). Ovogal is a combination of bile acids with egg albumen. It is a greenish-yellow powder, insoluble in water, dilute acids, ether, benzol, fats, etc. It is soluble in alkalies, splitting up into albumen and bile acids (glycocholic and taurocholic acids). Ovogal is said to pass through the stomach without appreciable decomposition and to be dissolved and absorbed in the intestine. It is given, as are the bile salts, as an intestinal antiseptic purgative and cholagogue.

OXFORD. See **ARCHITECTURE.**

OXYGEN. See **CHEMISTRY.**

PACIFIC NORTHWEST LIBRARY ASSOCIATION. See **LIBRARY PROGRESS.**

PACING. See **RACING.**

PADUCAH. See **KENTUCKY.**

PAGASÆ. See **ARCHÆOLOGY.**

PAGET, FRANCIS. A bishop of the Church of England, died August 2, 1911. He was born in 1851, son of the famous surgeon, Sir James Paget. He received his education at various schools and at Christ Church, Oxford. After serving as teacher and as vicar in several parishes, he was appointed in 1885 regius professor of pastoral theology and canon at Christ Church. During this period he attracted attention by a suggestive essay on the Sacraments, published in *Luz Mundi*. In 1892 he was appointed dean of Christ Church, succeeding Dr. Liddell. On the death of Dr. Stubbs, bishop of Oxford, 1901, Dr. Paget was nominated by Lord Salisbury to succeed him. He proved an able administrator of the bishopric, but he came to a time when he found difficulties increasing between himself and the extreme section of the Anglican Church. In 1903 he declined Mr. Balfour's offer of translation to the see of Winchester, but in the following year accepted a membership on the royal commission on ecclesiastical discipline. The testimony taken by this commission revealed to him the lengths to which the extreme ritualists had gone even in churches with which he himself was concerned. Thenceforward there was a coldness between the bishop and the heads of the newspapers of the extreme party and it became intensified by his outspoken charge at his visitation in 1906 when he insisted on the need of a return to a sense of law, and by his action in depriving the incumbent of Wolverton St. Mary who persisted in the practice of reservation. Among his published works are: *Concerning Spiritual Gifts; The Redemption of Work; The Spirit of Discipline; Studies in the Christian Character; The Redemption of War; and A Primary Charge.*

PAINTING. Neither the spring nor winter exhibitions of New York's National Academy of Design offered much that called for special enthusiasm upon the part of visitors. Professional critics treated both exhibitions as rather beneath than above the average of the last few years. Lack of adequate exhibition room was once more given as the reason for rejecting two-thirds of the pictures offered to the jury of selection. While the need of a new fine arts building available for exhibition purposes is universally conceded, no solution of the problem is in sight. The result is that, while

the yearly art exhibitions held in Philadelphia, Pittsburgh, Buffalo, and Washington, are constantly growing in interest and importance, the largest city in the country, the home of its foremost artists, makes no advance. Meanwhile, new schisms threaten the venerable academy, and the close of 1911 saw a new art society launched as a protest against the alleged ultra-conservatism of the academicians.

PRIZES. Prizes at the spring academy were awarded as follows: The Thomas B. Clarke prize of \$300 for the best American figure composition went to Charles W. Hawthorne for his picture of a young girl being measured for her trousseau, a picture which had the strength of beauty and simplicity in both theme and technic. The Hallgarten prizes of \$300, \$200, and \$100 for the best pictures in oils fell respectively to Lillian Genth for a nude study; to Joseph T. Pearson, Jr., for a group of geese; and to Leslie P. Thompson for a portrait of two young girls taking tea. The Inness gold medal for the best landscape went to W. Elmer Schofield for his "February Morning." John C. Johanson won the Saltus medal with "In a Garden," a group of women, life-size, under trees. The Julia A. Shaw memorial prize of \$300 for the best work by an American woman was awarded to Mary Van der Vwer for a child at study.

SPRING EXHIBITION. Of the 371 pictures shown 214 were by non-members of the academy. Among the notable contributions was George de Forest Brush's "Portrait of Betty Holter," an excellent example of this painter's work, strongly characteristic and, as usual, suggestive of classic influence. Irving R. Wiles offered a good portrait of Charles A. Schieren, and S. J. Wolf one of David Warfield that was equally interesting. Sergeant Kendall had a capital portrait of two little girls. There was good color in Andrew T. Schwartz's decorative composition, "Hope, Destiny and Despair." F. Luis Mora's "Studio Tea" showed very graceful figures. Robert MacCameron's important portrait of Rodin, and Mrs. Prellwitz's "Sleepy Boy" deserved mention.

As usual landscapes predominated in the exhibition. Ernest Lawson, Fred J. Mulhaupt, Charles Rosen, R. W. Van Boskerck, Walter Granville-Smith, Gardner Symons, C. C. Cooper, were all well represented. Of special value were A. L. Groll's "Golden Cloud," Gifford Beal's "Foot of Crow Nest," Daniel Garber's "Barnyard." George M. Bruestle's "Hilltop Farm," Fred J. Waugh's "Cape Ann," and William Ritschel's "Moonlit Breakers." George Bellows and Guy C. Williams both showed New York scenes, the first with skyscrapers and hurrying crowds, the second a "City Square in Winter." Charles Mielatz had a view of the Hudson at night. John F. Carlson's "Silvered Acres," George H. Macrum's "Catskill Valley," and Guy Rose's "November" attracted attention. J. Francis Murphy and Ben Foster, two of our strongest landscape painters, were as effective as usual, the latter with a glimpse of fading sunset through sombre pines that Mr. Foster has painted so often and so well. Walter Palmer's snow scene, "Hillside," was full of wintry peace. A daring and brilliantly painted figure of a dancer by Ben Ali Haggin, entitled, "Stanice," aroused admiration or the reverse according to one's temperament and training. It was certainly one of the score of pictures in the show that are remembered.

WINTER EXHIBITION. For the winter academy exhibition held in December, 1712 works were offered, 661 were accepted, and 412 found places. Of the 412 placed, 345 were paintings and the rest sculpture. More than half the works placed—242 to be exact—were by non-members. The Carnegie prize of \$500 for the best picture not a portrait by an American went to Edwin H. Blashfield for an immense allegory of fairly decorative quality entitled "Life." The Proctor prize was won by Eugene E. Speicher for a portrait of Miss Helen Appleton. E. Irving Couse took the Isidor medal for the best figure composition. His "Indian" was well worth the honor.

The notable picture of the exhibition was John S. Sargent's portrait of the Hoosier poet, Riley, owned by the Indianapolis Art Institute, a work in which the famous painter's incomparable skill found splendid expression. It was not the best Sargent seen here of late years, but it is a masterpiece. A Russian, Nicholas Fechin, held the place of honor in the exhibition with a large canvas entitled, "L'Enlèvement d'une Nouvelle Mariée," a picture confused with a wealth of vaguely painted detail comprising a score of figures, horses, etc., that called for long study to make clear and then remained a puzzle to most observers.

Besides the Sargent mentioned, the portraits were not impressive. Neither William M. Chase, who was not happy with his "Lady in Black," nor Irving Wiles, with his portrait of two sisters, reached the standard of their usual work. Neither did J. Alden Weir's portrait of a lady sitting awkwardly upon an oak chest suggest mastery except in unessential detail. Ben Ali Haggin's portrait of Miss Marjorie Curtis, owing perhaps to its theatric pose and an unfortunate background, just missed distinction. Sergeant Kendall's "Allison" was a delightful study of a child. Eugene E. Speicher's portrait of Charles Dana Gibson; C. C. Cooper's portrait of Aage Fredericks, something of a departure for this painter of city sky-scrapers; Howard R. Butler's portrait of Theodore Weston, Sergeant Kendall's "Rosemary," a woman in a most unpicturesque and uncomfortable attitude; a nice head of a Spanish peasant by Gertrude V. Whitney, and William Cotton's portrait of Miss Dvořák completed the list of portraits calling for mention.

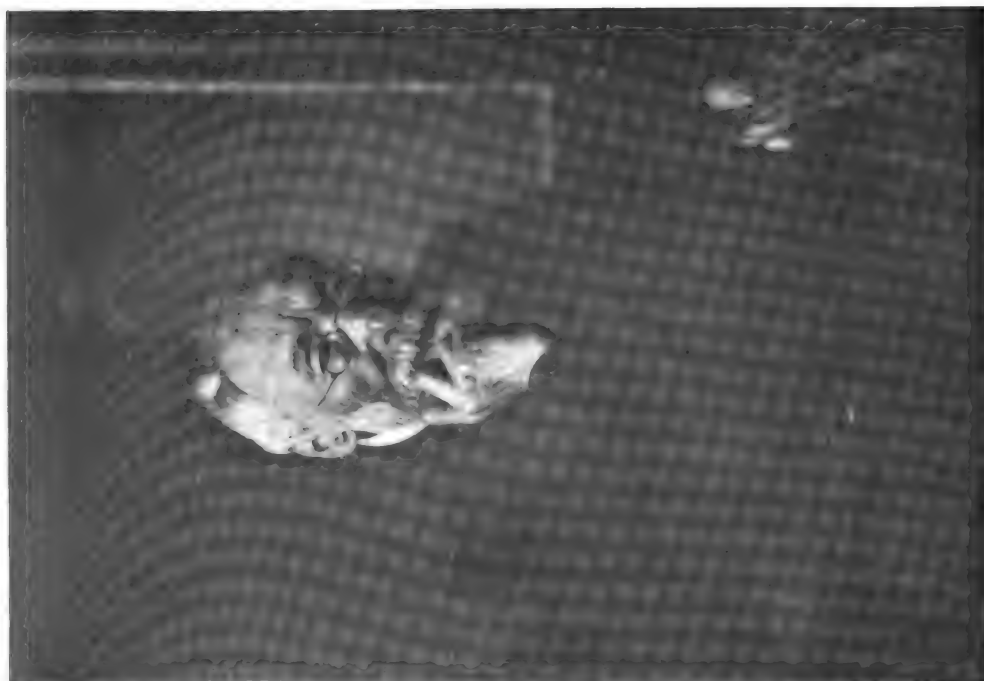
The veterans among the landscapists showed to better advantage than their younger rivals. Charles Warren Eaton's "Forest Lands," Alexander Harrison's "Moonlight upon the Ocean," Arthur Parton's "Nightfall," Ben Foster's "Early Moonlight," and C. P. Gruppe's flock of sheep, "The Hour of Peace," were all good pictures that did credit to their painters. Also Jesse Whitsit's "Clouds on Windward Mountain," Walter Griffin's "Breton Village," and Walter Granville-Smith's "River Idyl," deserve mention. Admirable snow scenes were shown by Walter Palmer and by Gardner Symons, whose snow-clad field was full of atmosphere. Ernest Lawson's "New Road" was another bold attempt to make seemingly haphazard splashes of pigment tell a story. Jonas Lie had a vigorous winter scene showing the approaches to one of the great city bridges.

J. W. Breyfogle's "Ballet Girl Knitting." C. C. Curran's graceful figure of a young girl en-



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EDWIN A. ABBEY



Courtesy of the *Reviews of Reviews*

JOSEF ISRAELS

TWO PROMINENT PAINTERS WHO DIED IN 1911

titled "On the Pinnacle," Lillian Genth's "The Promenade," F. L. Frieseke's "Parrots," and John C. Johanson's "On the Beach" were all figure pieces that attracted more or less attention. E. L. Blumenschein had an ambitious canvas of several figures around a child. Mrs. Amanda Brewster Sewell's three children in a row were rather too pretty for latter-day taste, which might also be said of Douglas Volk's "Little Mildred," and Adelaide Cole Chase's figure of Master Ralph Cram with his canary. William M. Paxton's nude figure "Glow of Gold" may have caused some of the academy's patrons to gasp, but had its merits.

WATER COLOR EXHIBITIONS. Both the New York societies devoted to water color work held exhibitions during the year. At that of the Water Color Society, held in April, an interesting feature was a memorial group of pictures by Winslow Homer, an artist who achieved almost sensational realism without resorting to grotesque methods. Childe Hassam had a storm scene of uncommon strength. Frederick Wagner's "Old Market Place," with its group of snow roofs, Hopkinson Smith's Dutch sketches, and Charles W. Eaton's Italian views were all characteristic. C. C. Cooper contrasted the charms of a little French village with the impressiveness of Broadway's cañon. Walter Granville-Smith, Edward H. Potthast, Bruce Crane, Alonzo Klaw, and Gifford Beal were other artists represented. The notable portrait of the show was Hilda Belcher's "Mrs. John Richard and her Daughter."

At the show of the Water Color Club, held in October, C. C. Cooper took the Beal prize of \$300 for his picture of an old Salem house upon the pink brick walls of which the sunlight plays with delicate effect. The house itself is one of the most imposing of colonial mansions. Ross Turner, C. C. Curran, Olive Rush, and E. L. Warner, who found his subject in a Broadway scene on a misty night, were other contributors. William Ritschel's "Morning on the Pacific" was a capital study of huge waves. Childe Hassam's marines were also noteworthy. "Gossips," by Alice Schille, was a good study of two old women.

PITTSBURGH. A large number of the best of the American pictures shown in the Pittsburgh exhibition of the Carnegie Institute had been seen in New York and already mentioned in recent YEAR BOOKS. Among them were Charles W. Hawthorne's "Refining Oil," Gari Melcher's "Maternity" and "The Smithy," John Solan's "Clown Making Up," E. W. Redfield's "On the River Banks," R. E. Miller's "Chinese Statuette," Daniel Garber's "Lumberville," Childe Hassam's "The Open Window," Sergeant Kendall's "Reflection," and Mary Cassatt's "Little Girl Reading." Nearly forty paintings by J. Alden Weir were shown as a group. Foreign work of value was contributed by Emile Blanche (portrait of Henry James), Gaston La Touche, Henri Le Sidaner, Henri Martin, Maxime Maufra, Emile Ménard, Lucien Simon, William Orpen, and William Nicholson. The gold medal and \$1500 were awarded to J. W. Alexander for his "Sunlight," the graceful figure of a girl previously shown in New York; Frank Craig took the \$1000 prize with his portrait of Sir John Jardine, and Algernon Talmage that of \$500 for "The Kingdom of the Winds."

PHILADELPHIA. One of the best pictures in

the Philadelphia Academy exhibition opened in February was by common consent J. Alden Weir's "The Spreading Oak," a magnificent canopy of foliage. Childe Hassam was also at his best with his "New Haven Green," a brilliant achievement in all senses of the word. Daniel Garber received the Lippincott prize for his "River Bank," and Joseph T. Pearson the Sesnan prize for a landscape of cattle somewhat dull in tone. Gardner Symons, Ernest Lawson, and James M. Preston showed that impressionism may not always mean incoherence. Other good landscapes were signed by Jonas Lie, W. L. Metcalf, and W. E. Schofield. Lionel Walden's "View of Times Square at Night" was one of the most graphic of such scenes exhibited of late. E. C. Tarbell's portrait of Dr. Dwight (which took the Beck medal) and Wilton Lockwood's portrait of Dr. Eliot had both been exhibited in New York shows and duly praised. Robert Henri had a strong and vivid sketch of a fisherman. Other portraits worthy of note were by Adolphe Borie, Joseph de Camp, and John C. Johanson. F. W. Benson's study of a girl reading, a success of flickering sunlight, was contrasted with William M. Paxton's highly finished "Housemaid."

BUFFALO. Buffalo held an important and interesting exhibition in November devoted to French art, chiefly the work of members of the Paris Société des Peintres et Sculpteurs. Ten pictures by René Ménard, including "The Judgment of Paris," from the Carnegie Institute, and a number of superb landscapes were shown. Herri Martin, Henri Le Sidaner, Antonio de la Gandara, Paul Albert Besnard (portrait of William A. Clark), Edmond Aman-Jean, Cottet, Gaston La Touche and Lucien Simon were some of the artist representatives. Of American work Sargent's beautiful portrait of Mrs. George Austin, dating back to 1882, was conspicuous.

FOREIGN EXHIBITIONS. The Paris Salon of the Société des Artistes Français in April opened with more than 3000 paintings, drawings, and miniatures. One large room was devoted to a series of important decorations by Fernand Cormon for the Petit Palais. The subjects are historical, beginning with Charlemagne and coming down to Hugo, Pasteur, Littré, and Curie. Jules Grün had an enormous canvas, entitled "Varnishing Day at the Salon," containing more than one hundred portraits of persons conspicuous in Paris life. Jean Paul Laurens showed an unpleasant scene from Inquisition annals. Besson's picture of a tramp sitting on a bench in the Tuilleries Gardens, surrounded by a happy throng of aristocratic children told a pathetic story. Léon Comerre's "Le Déluge" was especially impressive to the Parisians who had been through last year's floods. Other French artists whose work attracted attention were Marcel Berroneau, Robiquet, Eugène Chigot, Gabriel Ferrier, François Flameng, and Lauth. The Marquise de Wentworth showed an uninteresting portrait of President Taft. Among one hundred Americans represented were Lionel Walden, H. S. Hubbell (portrait of Dr. Seelye), Richard Miller, W. E. Cook, Parke C. Dougherty, Howard M. Hawthorne, George Holland, Max Bohm, Larton Parker, George A. Picknell, Robert W. Vonnoh, Frank Boggs, Henry Mosler, and C. A. Slade.

In the Beaux Arts Salon a vast decorative canvas by René Ménard for the Marseilles

Savings Bank divided the honors with Besnard's ceiling for the Théâtre Français. Ménard's composition is a classic landscape with a lake in the foreground and mountains in the distance; a man is plowing with oxen. Besnard's ceiling is a triumph of delicate color. Cartoons by Alfred Roll for Gobelin tapestries had for subject the glorification of San-Martin, the liberator of the Argentine Republic. *L'Enterrement en Hollande* by Augustin Hanicotte, four gravediggers carrying a coffin through the snows of a sad Dutch landscape, and Henri Deluermoz's "*La Ruée*," depicting a flight of prehistoric animals before the deluge, were impressive pictures. Blanche had a delightful portrait of the Russian dancer, Nijinski. *La Touche*, Raffaelli, *Lhermitte*, and *Dauchez* were some of the others represented in an exhibition not notable for startling excellence.

An exhibition by the American artists in Paris was held there in February, when most of the men who had exhibited in the two salons showed their work. Others not already mentioned were George C. Aide, Myron Barlow, Joseph Pennell, Henry Steichen, and Charles H. Fromuth.

London's Royal Academy show opened in April with nearly 2000 pictures on the walls. The exhibition was unusually rich in good portraits, but while the average British standard for solid conscientious work was maintained, there was little that could be called brilliant. John S. Sargent, with a portrait of the archbishop of Canterbury, was hardly at his best. J. J. Shannon's "Viscountess Ingestre and her Daughter," and John Lavery's "Amazon," a woman on horseback that might have done for a suffragette banner, were both much praised. Herkomer had four portraits, the most successful being that of Admiral Lord Fisher. Sir E. J. Poynter, Frank Dicksee, and Sir Luke Fildes also contributed notable portraits. The veteran American artist, Bridgman, had a fine bit of color in his "Breakfast in a Cairo Harem," and Tadema offered his usual academic decorations.

The International Society of Sculptors and Gravers had its usual exhibition in London with a collection of works by such men as Rodin, Forain, Degas, Monet, Nicholson, Philpotts, Orpen, and Lavery. Lavery's portrait of Pavlowa was capital in its airy grace and suggestion of delirious movement. Philpotts's self-portrait was also highly praised. "The Plague," by Charles Ricketts, with a groping blind man as its central figure, had power.

Munich's yearly show was made of unusual importance as a testimonial to the venerable Prince Regent Luitpold who celebrated in 1911 his 90th birthday. The Münchener Kunstler Genossenschaft organized a jubilee exhibition in which all Germany took part. Eduard von Gebhardt, Walter Firlé, Theodore Bohenberger, Eugene L. Hoess, Hans Best, Fritz Erler, Gustav Bechler, and Ernst Liebermann were represented by important pictures.

Edwin A. Abbey, the veteran Josef Israels, who died in August at the age of eighty-seven, Félix Ziem, the painter of Venice scenes, and Fritz von Uhde, the German painter, were the noted artists whose deaths occurred during the year.

PALESTINE, EXCAVATION IN. See **ARCHÆOLOGY.**

PANAMA. See **ANTHROPOLOGY.**

PANAMA. A republic occupying the Isthmus of Panama. Formerly a department of Colombia, it declared its independence November 4, 1903. Capital, Panama.

AREA AND POPULATION. The area is variously estimated at from 31,570 to 33,776 sq. miles. No definitive figure for area can be accepted until the settlement of the boundary dispute with Costa Rica, which at the end of 1911 was under the arbitration of the chief justice of the United States. In October, 1911, it was decided to send a commission of engineers to gather additional information concerning the northern part of the region in dispute. By the treaty of November 18, 1903, the United States guaranteed the independence of Panama, and the latter granted to the United States, in perpetuity and with sovereign rights therein, a strip of land (the Canal Zone) extending to a width of five miles on either side of the Panama Canal. Considerable uncertainty has existed in regard to the population of the republic, which is mostly a mixed race of Spanish, Indian, and negro origin. An estimate of 1909 was 419,029; an estimate of the following year, however, was only 361,000; and near the close of 1911 preliminary census returns showed even fewer inhabitants, namely, 336,742. This was exclusive of the Canal Zone population, which was thought to be about 75,000. The city of Panama was reported to have 35,368 inhabitants and Colón 17,748. The town of David has about 12,000 inhabitants, and Bocas del Toro 10,000. In 1910 there were 238 public schools, with 14,305 pupils enrolled and 396 teachers. On June 18, 1911, President Arosemena dedicated the new buildings of the National Institute (high school, college of commerce and languages, and normal school) in the city of Panama.

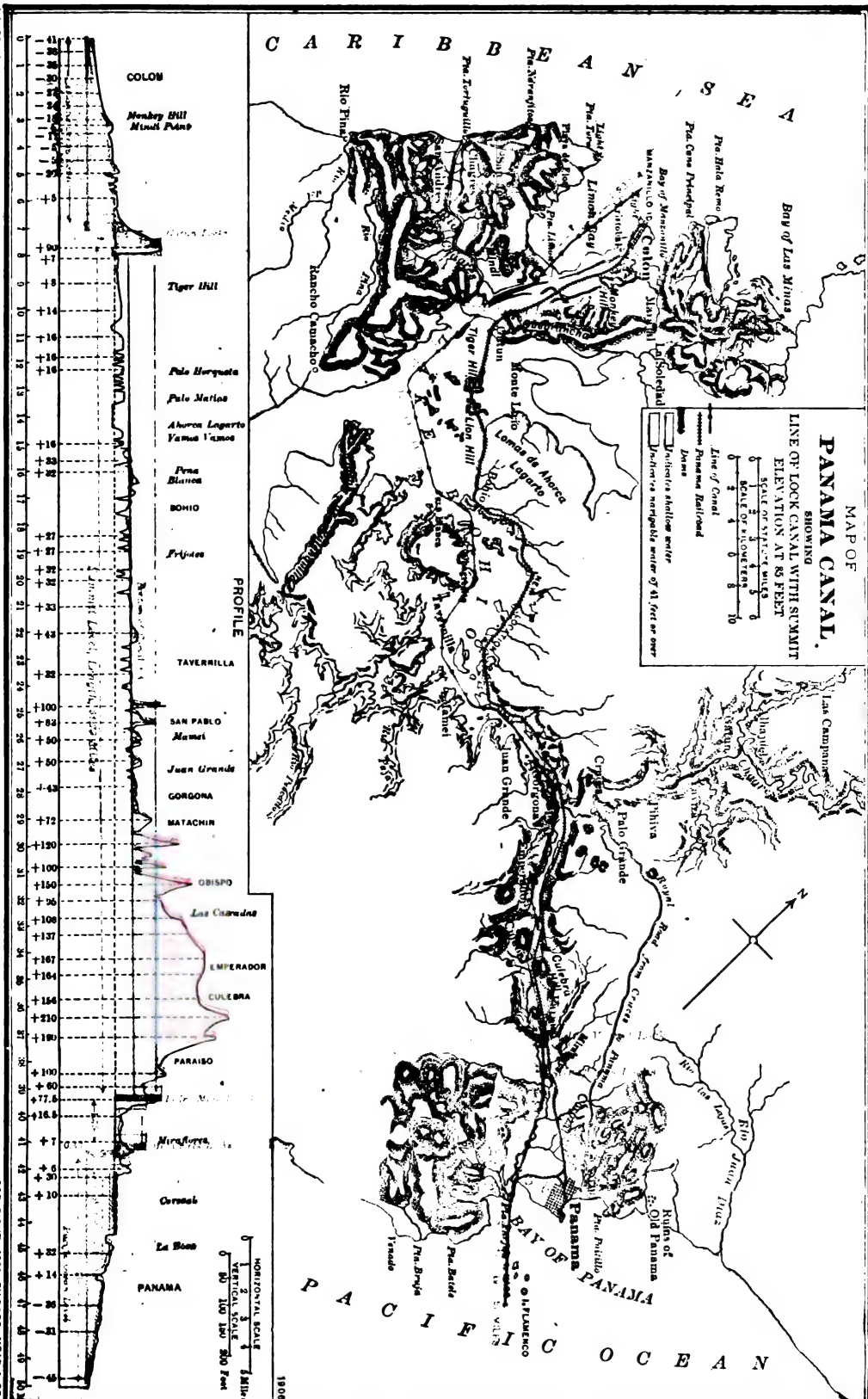
PRODUCTION, COMMERCE, ETC. Only a small part of the country is under cultivation, and the government in 1911 was making special efforts to increase immigration in order to hasten the development of natural resources. The principal crop is bananas; other products, raised in small quantities, are sugar-cane, cacao, coffee, rice, corn, yams, and sweet potatoes. There are numerous mineral deposits, but mining is little developed.

Imports (exclusive of non-dutiable supplies for the Panama Canal) and exports have been valued as follows:

	1908	1909	1910
Imports	\$7,806,812	\$8,756,308	\$10,056,994
Exports	1,827,050	1,502,475	1,769,330

The principal classified imports in 1910 were: Vegetable products, \$2,722,869; textiles, \$1,847,182; animal products, \$1,700,813; mineral products, \$976,413. Of the exports, bananas amounted to \$921,286, rubber \$172,634, coconuts \$157,671, bar gold \$134,975, and ivory nuts \$132,636. In 1910 the United States sent imports and received exports valued at \$5,652,653 and \$1,508,422 respectively; Great Britain, \$2,166,989 and \$105,273; Germany, \$966,151 and \$93,669.

The Panama Railway crosses the isthmus from Colón to Panama, 48 miles; there is a branch of three miles to Balboa. There is a railway system in the territory about Bocas del Toro principally for the banana industry, with 151 miles of track. Total railway mileage, 202. In



1910 a railway was projected from Panama to David (274 miles). A loan of \$10,000,000 was authorized for its construction, and bids were invited; they were opened August 31, 1911, but were not satisfactory. Modifications of the financial conditions were then enacted by the National Assembly, but were vetoed by President Arosemena on October 15. Telegraph offices (1910), 37; post offices, 96.

FINANCE AND GOVERNMENT. The revenue in 1909 was reported at \$2,973,292; 1910, \$3,544,338. Figures for expenditure are not available. Revenue is derived largely from customs.

The chief executive is a president elected by popular vote for four years and assisted by a cabinet of five members. The legislative power is vested in the National Assembly, a unicameral body of 32 members. José Domingo de Obaldía, president for the term ending October 1, 1912, died March 1, 1910. The executive duties were assumed by Carlos Antonio Mendoza, second *designado*, the first *designado* having died in 1909. The *designados* (successors in case of presidential vacancy) are elected not by the people, but by the assembly. On September 14, 1910, the assembly chose as first *designado* Pablo Arosemena, who thus became acting president for Obaldía's unexpired term. Second *designado*, Federico Boyd. There is no army, but the government maintains a national police corps of about 1000 men.

PANAMA CANAL. The work of completing the canal had progressed so far by the beginning of 1911 that discussion had passed from engineering problems entailed in the work to questions relating to the operation of the canal after it had been completed and to its fortification by the United States government.

The estimated date for the completion of the canal, based upon the report of the International Board of Engineers, submitted in 1905, was fixed at January 1, 1915. In the meantime, however, the work advanced more rapidly than had been anticipated and it became apparent that it would be possible to pass vessels through the canal at least a year earlier than this date. The shipping interests of the world, becoming aware of this tendency and realizing the necessity for commerce to adjust itself to the new conditions, raised the question of canal operation in July, 1910, and urged an early submission of the question. Attention was called by these interests to the fact that at least eighteen months' notice of the rates should be given in order that steps might be taken in time to change routings that would follow if the canal were put into use. To determine the approximate date when the canal would be ready for use and to report what steps should be taken to expedite the work a board was convened composed of those charged with the work in progress and in contemplation. Based upon the report of this board announcement was made that all the concrete in the lock at Gatun would be laid by June 1, 1912, and in the locks on the Pacific side by October 1, 1912; that, assuming the gates were completed by June 1, 1913, the locks would be ready for use on this date if the operating machinery were installed; that the work on the spillway at Gatun would be completed to an elevation of fifty feet by April 1, 1912, and the entire dam would be finished by the close of the dry season 1912-13; that the excavation through Culebra Cut would

be completed by July 1, 1912, if no more material due to slides had to be removed than was estimated at the time of the report; and that the exterior channels would be sufficiently advanced to pass the shipping that would use the canal. Upon the basis of this report, Col. George W. Goethals, chairman and chief engineer, recommends in his annual report for the fiscal year ended June 30, 1911, the importance of legislation fixing the proposed toll charges. Although the question had been discussed informally in Congress and outside, no legislative steps had been taken at the close of the year 1911.

Another matter connected with the ultimate operation of the canal is the organization for its operation and for the government in the canal zone. The existing law provides for the construction of the canal and also for the exercise of the military, civil, and judicial powers necessary for the government of the canal zone during the period of construction. Colonel Goethals recommends that the operating force of the canal be obtained by the selection of suitable men from the present organization. The total outlay for maintaining the canal will be for wages of the force engaged in its operation, the expense of engineering work connected therewith, and the cost of sanitation and civil administration. The land comprised in the canal zone is, in Colonel Goethals's opinion, of little or no value outside the canal itself. The canal zone comprises 436 square miles, of which 73 square miles are owned privately and 363 by the government. A large part of the government land will be required for military and naval purposes. The position of the republic of Panama and its two cities, Panama and Colon, with respect to the zone, makes it necessary in the interest of harmony that the Spanish laws now in force shall obtain. Colonel Goethals recommends that the rules and regulations for the government of the zone made effective subsequent to the Fifty-eighth Congress should be approved, and that changes should be authorized to meet new conditions as they arise. He does not favor the leasing of lands for the reason that they are not suitable for farming or other occupations. The greater the amount of land leased and the number of town sites established and occupied, the greater will be the cost of sanitation and civil government.

OPERATIONS IN 1911. The total amount of excavation in the three divisions, the Atlantic, Central, and Pacific divisions, during the fiscal year 1910-11 was 31,804,120 cubic yards. In the Atlantic division, embracing the construction of the locks and dam at Gatun and the excavation between the locks and deep water in the Caribbean, there were excavated 6,738,513 cubic yards. The total excavation in the Central division, embracing all the excavation between the Gatun dam and Pedro Miguel locks, amounted to 18,522,692 cubic yards, of which 16,221,672 cubic yards were removed from the Culebra section, known as Culebra Cut. The remainder was taken from the Chagres River section. The excavation in the Pacific division, which embraces the construction of the locks and dam at Pedro Miguel and the locks and dams at Miraflores, aggregated 6,642,915 cubic yards. In addition to the amounts above mentioned there were removed in the preparation of foundations 399,426 cubic yards

in excavation. The excavation for the calendar year 1911 in the various divisions will be found in the table at the end of this article.

The total amount of concrete laid during the fiscal year 1910-11 was 1,742,928 cubic yards. Of this amount there were laid in the Atlantic division 970,788 cubic yards, of which 59,651 cubic yards were laid in the spillway and 911,137 cubic yards in the locks. In the Central division there were laid in connection with the flume constructed for the Obispo division 1020 cubic yards. In the Pacific division, 771,120 cubic yards were laid, of which 498,187 cubic yards were placed in the Pedro Miguel locks and 272,933 cubic yards in the Miraflores locks.

The work in the various divisions during the fiscal year 1910 is noted with some detail below. The first division, under Col. H. F. Hodges, assistant chief engineer, is concerned chiefly with the design of the locks, dams, regulating works, and accessories. The scope of the division was increased during the year so as to add to its duties the design and construction of aids to navigation, the inspection of the manufacture and erection, under contract or otherwise, of the lock gates, operating machinery, gates and valves, emergency dams, and of the placing of such concrete in the locks as must be omitted until the machinery is installed. During the year the general plans of all the locks were practically completed, as were also the contracts for valves, frames, and bulkheads. During the fiscal year new contracts were entered into or advertisements issued for the remaining frames, valves of all descriptions, and other machinery necessary.

During the year all the material under contract for the fixed parts pertaining to the miter lock gates was delivered. Under the contract completed January 21, 1910, work was in progress on the construction of the gate leaves proper. Eight of these leaves are 54 feet 8 inches high. These comprise the upper guard gates in Gatun and Pedro Miguel locks; eight leaves each seventy-seven feet high are for the upper and middle gates in the upper lock at Gatun; and eight others, each seventy-seven feet high, are for the safety and lower gates in the same lock. The erection of the gates, which was to have been begun on January 1, 1911, at Gatun and on March 1, 1911, at Pedro Miguel, was somewhat delayed.

The plans for emergency or movable dams were completed in the early part of December, 1910, and the work of constructing and erecting them in place was advertised in January, 1911. The contract was awarded to the United States Steel Products Company for the sum of \$2,238,988. These dams are to be completed by June 15, 1913.

Much study was given during the year to the electrical devices which will be used for the operation of the canal after completion. This contemplates a hydro-electric station on the Gatun dam with a reserve generating station at Miraflores to be operated by steam. The two stations are to be connected by a transmission line and a current from either or both can be used for any of the operations of the canal. A scheme for lighting the canal has been prepared and adopted. It contemplates the use of range lights for establishing the direction on the longer tangents and of side lights spaced about a mile apart to mark each side of the channel.

Lighted beacons are also to be used. These are to be built of reinforced concrete. The sailing lines, marked by the range lights except at the entrance to the canal, will be so placed that all ships will follow a course 125 feet to their starboard of the axis of the canal; thus two passing ships, if on their ranges, will have their centre line 250 feet apart. For locating and referencing the gas buoys and providing an unrestricted view of the range and reference targets, 1000 acres of land must be cleared. Work was begun on April 20 and at the close of the fiscal year 375 acres had been cleared.

ATLANTIC DIVISION. This division is in charge of Lieut.-Col. William L. Sibert of the United States army. As noted above, it embraces the construction of the locks and dam at Gatun and other important work. At the close of the fiscal year 1910 the excavation for the Gatun locks was practically completed. During 1911 the excavation of the lower lock was completed to include the location of the caisson sills. A total of 475,875 yards of excavation were removed by steam shovels. Work on the Gatun dam progressed steadily during the year. It is estimated that at the close of the fiscal year 74 per cent. of the dam was completed. A total of 2,726,094 cubic yards of dry fill was placed in the toes of the dam during the year, making a total of 6,881,042 cubic yards replaced since the beginning of the work. The total wet fill placed in 1911 amounted to 3,758,870 cubic yards, making a total of 7,411,992 cubic yards.

CENTRAL DIVISION. The Central division, embracing all the excavation between the Gatun dam and the Pedro Miguel locks, is in charge of Lieut.-Col. D. D. Gaillard. The district includes the Chagres River and the Culebra Cut. During the fiscal year there were excavated from Culebra Cut 16,221,772 cubic yards and there remained for excavation, according to estimates prepared on July 1, 1911, 23,929,140 cubic yards to be removed in order to complete this section of the canal. This estimate was considerably increased by several slides which occurred during the year. The slides will exceed the excavation by about 5,000,000 additional cubic yards. The largest slides that have occurred in this section have been those at Cucaracha, which covered 47.1 acres and the Culebra slide, covering 46.6 acres. From the former up to July 1, 1911, 2,722,164 cubic yards of material had been removed, leaving a remainder of 400,000 cubic yards. From the Culebra slide on the east bank 2,329,784 cubic yards had been removed at the end of the fiscal year, leaving about 1,664,350 cubic yards to be removed. On the west bank, 3,714,562 cubic yards had been removed, leaving 3,391,300 cubic yards. There the slides have been of less importance.

The average cost for excavation including all items which entered into its accomplishment was 58.8 cents per cubic yard. At the close of the year the Culebra Cut was 73.25 per cent. completed.

PACIFIC DIVISION. This division, in charge of S. B. Williamson, included the construction of the locks and dam at Pedro Miguel and the locks and dams at Miraflores, and other minor work. The excavation of the lock chamber at Pedro Miguel was completed during the fiscal year by the removal of 16,423 cubic yards of excavation. In addition, 76,847 cubic yards were removed in preparing the foundations for



PEDRO MIGUEL LOCKS, EAST CHAMBER, LOOKING NORTH, JULY 15, 1911



GATUN UPPER LOCKS, LOOKING NORTH AND SHOWING CONSTRUCTION OF UPPER GUARD GATES,
EAST CHAMBER, AUGUST 5, 1911

PANAMA CANAL

the locks and dam. The total amount of concrete laid during the fiscal year at Pedro Miguel was 498,187 cubic yards. The total amount of concrete laid in the Pedro Miguel locks at the close of the year was 665,065 cubic yards, and the estimated amount remaining July 1, 1911, was 172,345 cubic yards. The lock was 79.42 per cent. completed on that date.

The excavation by steam shovels in the upper lock at Miraflores was completed during the year. The total amount of concrete laid in these locks was 272,933 cubic yards. The total amount of masonry (concrete and large rock) laid in the locks on the Pacific side up to the end of the year was 771,120 cubic yards.

TERMINALS. The increase in the number of vessels touching at the ports on either side of the Isthmus has made it necessary to extend the existing docking facilities. A board was appointed on April 24, 1911, to consider and report on the facilities necessary in connection with the use of the completed canal. The chief facilities were to include the storing and furnishing of coal and other fuel for use both afloat and ashore, the furnishing of fresh water to shipping, the furnishing of adequate and convenient facilities for the repair of all vessels as well as of rolling stock, equipment, and machinery ashore; and the question of storehouses and storing of material and supplies on the Isthmus other than fuel for all other purposes after the completion of the canal. A comprehensive scheme was outlined by this board having in view the construction at the Pacific terminus of a dry dock, the permanent shops, and a storehouse for supplies. A coaling station at each end is contemplated, together with an arrangement of docks which will permit of subsequent additions. The dry dock is to conform in its dimensions to the locks, and the wharves are to be of sufficient dimensions to care for any shipping which can use the canal. In other words, the docks are to have a length of 1000 feet and depths of water equal to the depths provided in the channels of approach. It was decided that on the Atlantic side the docks should be within the limits of the canal zone, located so as not to interfere with the traffic through the canal and at the same time to enable shipping to lie in them in safety during storms. To accomplish these objects negotiations have been undertaken to secure part of the waterway north of Cristobal Point which at the present time is under the jurisdiction of the Republic of Panama. Designs were prepared for the construction of a mole extending in a general westerly direction to the canal prism from the intersection of the shore by a line separating the zone from Colon and of dimensions sufficient to protect against storm both the docks and the basin which will be excavated to the south of them. The necessary borings to determine the depths of rock were made during the year. Trestles were built for the mole and for the first slip of the new dock. On the Pacific side a provisional location was selected for dry docks and for the permanent shops and an arrangement was made for a scheme of docks. As the docking facilities of the Panama Railroad at Balboa are very much restricted there was immediate necessity for additional wharves and under an allotment from the Panama Railroad of \$428,700 a reinforced concrete dock 706 feet long and 55 feet wide was begun.

PANAMA RAILROAD. The construction of the relocated line of the Panama railroad was continued during the year. All grading on the line from Gatun to Gamboa was practically completed at the beginning of the fiscal year. Filling was made at the Gatun River bottom involving the dumping of 932,238 cubic yards. Reinforced concrete piers for the permanent bridge across the Gatun River were built during the dry season. The construction of permanent telegraph and telephone lines was undertaken during the year. This was built of fifty-six pound steel rails for poles, each equipped with four cross arms. On June 30, 1911, the line from Gatun to Gamboa Bridge was 50 per cent. completed.

CIVIL ADMINISTRATION. The civil administration of the canal zone is in charge of Maurice H. Thatcher. Fifteen executive orders of the President and Secretary of War, having the effect of law, were issued during the fiscal year. Most of these were of minor importance.

During the year 364 vessels entered the port of Ancon having a tonnage of 457,746, and 263 vessels cleared, with a tonnage of 454,572. At Cristobal 263 vessels entered, with a tonnage of 722,870, and 264 vessels cleared, with a tonnage of 727,955. On June 30, 1911, there were in force in the canal zone 2251 leases, of which 984 were for building lots and 1261 for agricultural lands. The rents collected amounted to \$23,469.

In accordance with an agreement with the United States government and the Republic of Panama, municipal improvements in the cities of Panama and Colon were carried on during the year. These were chiefly in connection with water mains and sewers.

In the schools under the control of the American government in the canal zone there were enrolled on October 1, 1910, 1837 children, of whom 931 were white and 916 were colored. In June, 1911, 1410 children were enrolled in the white schools and 1568 in the colored schools. There were ten schools in operation for white children and fifteen for colored children. The canal zone high school was transferred from Cristobal to Gatun and a branch high school was established in the school building at Ancon.

SANITATION. The sanitary work, under the direction of a commission, embraced work in the cities of Colon and Panama in the canal zone. The department is in charge of Col. W. C. Gorgas, as chief sanitary officer. In the canal zone there were expended during the year, under the direction of this department, \$114,725 for grass and brush cutting, and \$42,144 for the removal of night soil and garbage. In the maintenance of existing ditches and the construction of new ones for drainage purposes, there was expended the sum of \$81,407.

The total admission to hospitals and sick camps, including those sick in quarters, amounted to 53,534. The daily average of sick was 24.47 out of every 1000 employed, as compared with 23.01 in 1909-10 and 23.49 in 1908-9.

EXPENDITURES. The total amount appropriated by Congress for the construction of the canal and the purchase of canal rights up to June 30, 1911, was \$288,012,468. In addition there was appropriated in 1911 under the armament of fortifications, \$1,000,000; and for sea coast batteries, \$2,000,000. Of the amount

appropriated, \$225,470,053 had been expended at the end of the fiscal year. These expenditures are classified as follows: Department of civil administration, \$4,891,521; department of sanitation, \$13,194,372; excavation and construction, Atlantic division, \$33,860,373; Central division, \$67,938,114; Pacific division, \$21,587,641; general items, including all other work, \$83,998,029. The disbursements for the fiscal year 1911 amounted to \$37,830,278. There was an available balance June 30, 1911, of \$19,307,698.

CANAL EXCAVATION TO DECEMBER 31, 1911

By French Companies.....	78,146,960
French excavation useful to present canal	29,908,000
By Americans:	
Excavation	98,157,431
Dredges	59,853,532
Total	158,010,963
May 4 to Dec. 31, 1904.....	243,472
Jan. 1 to Dec. 31, 1905.....	1,799,277
Jan. 1 to Dec. 31, 1906.....	4,948,497
Jan. 1 to Dec. 31, 1907.....	15,765,290
Jan. 1 to Dec. 31, 1908.....	37,116,735
Jan. 1 to Dec. 31, 1909.....	35,096,166
Jan. 1 to Dec. 31, 1910.....	31,437,877
Jan. 1 to Jan. 1, 1912.....	31,603,899

quoted the instance of the International Paper Company, which has on all its land in the United States less than 0.2 of a cord per acre, or less than the new growth, so that on its forests in Maine, New Hampshire, Vermont, and New York it has standing to-day fully as much timber as in 1898. At the same time it had established a nursery, and done considerable planting of areas that had been burned over or otherwise devastated, and had introduced timber culture on abandoned farms. It was stated that this was the custom of other manufacturers owning wood pulp lands.

The legislation of the American Congress and the failure of the reciprocity agreement in Canada encouraged paper manufacturing in the Dominion, and not only were extensions and new companies contemplated, but considerable American capital was going across the border for investment in this field. The new mills were receiving the best possible equipment and prospects were most encouraging for great developments in the Canadian industry. A few new paper mills were completed during the year in territory near the border on the American side, while a large machine news mill was built

TOTALS BY DIVISIONS AND AMOUNT TO BE EXCAVATED

Divisions	Amount excavated	Remaining to be excavated
Atlantic:		
Dry excavation.....	8,549,205	*49,058
Dredges	27,472,627	11,255,048
Central:		
Culebra Cut	73,502,824	14,941,181
All other points.....	11,924,091	433,200
Pacific:		
Dry excavation.....	4,368,559	2,563,521
Dredges	32,193,657	7,168,524
Grand totals	158,010,963	37,312,416

* Estimate exceeded by this amount.

PANAMA-PACIFIC INTERNATIONAL EXPOSITION. See EXPOSITIONS.

PAPER. The paper industry during the year 1911 was largely concerned with political and legislative events. These concerned in particular trade relations between the United States and Canada, as affected by the reciprocity agreement and tariff legislation, while at the same time the investigation of the cost of production in the United States and of various combinations in the industry all figured as subjects of prime importance. See **TARIFF**.

In connection with the discussion of wood pulp and the tariff, it was announced during the year by an officer of the International Paper Company that if no Canadian wood pulp whatever were imported here "it would not jeopardize either our paper industry or our forests, provided we were protected in our market by a foreign duty." Forty per cent. of the annual output in the United States was made from rags, old paper, manilla straw, and other materials than wood, and the only paper made altogether of wood is news print paper, which is about 28 per cent. of the total production. As other woods than spruce can be used in paper making as soon as scientific methods are developed, and there are available various agricultural and industrial wastes, the question of the day, in the opinion of this expert, depended entirely on the sufficiency of the material for news print paper. In his opinion, adequate supplies of this material remained, and he

on the water front of Brooklyn, New York harbor, with the object of making paper from pulp imported either from Canada or from Europe. The English paper-making industry enjoyed a good year during 1911. Increased dividends were paid by most of the companies, while the number of persons employed was between 2 and 4 per cent. higher than in the corresponding months of the year 1910. A large number of mills were installing new machines with a width of 165 inches. The drought in Europe served to increase prices during the year. The lockout in Norway had the effect of restricting the production of paper, and the changed customs duty in the United States on products in Canada had the effect of decreasing European exports to the United States. Norway and Sweden were most anxious to secure the same treatment as had been conceded to Canada, and favorable action was awaited with interest.

The experimental paper plant established by the Forestry Service of the United States govern at Wausau, Wis., began operations during the year. The special problem to which the laboratory addressed itself was to ascertain what domestic species of wood could be used to supersede spruce in the manufacture of mechanical pulp, and during the year scientific studies were made with hemlock and jack pine, from both of which pulps were manufactured under the same conditions as ordinarily employed in making news print paper from spruce pulp. Papers were secured with the same strength, fin-



PANAMA CANAL
CULEBRA CUT LOOKING NORTH BETWEEN CONTRACTORS' HILL AND GOLD HILL, JUNE, 1911

ish, and appearance as those possessed by standard news print paper, and a production of pulp was secured which approximated the averages obtained in the grinding of spruce, while pulps composed of mixtures of wood in various combinations were obtained which compared very favorably with the general run of spruce ground wood. An interesting result of these investigations was that lodgepole pine, a wood grown in Montana and other Western States, where water power was abundant and cheap, would make mechanical pulp which could be delivered to the mills in Wisconsin and Michigan at prices enabling it to compete with pulp imported from Canada, and with pulp made from foreign wood.

During the year compulsory legislation requiring the use of individual drinking cups brought the paper drinking cup before the public with increased demand, while the paper bag for cooking, paper towels, and paper handkerchiefs were receiving greater use.

During the year the statistics dealing with the pulp and paper production of the United States, compiled by the Thirteenth Census of manufactures, were published. These show an increase in the industry for the ten years 1900 to 1909 inclusive. In the former year there were 763 factories, representing a gross value of \$44,321,000, while at the end of the ten-year period there were 787 establishments, with a value of plants amounting to \$107,607,000, or an increase of nearly 150 per cent. Even greater was the increase in the total value of the products of these establishments, the figures for 1899, 1904, and 1909 being respectively \$127,327,000, \$188,716,000, and \$267,869,000. This increase is significant when the various grades of paper are considered. The production of news print in rolls increased from 455,000 tons, valued at \$15,755,000 in 1899, to 1,091,000 tons, valued at \$42,807,000 in 1909, which would indicate that the cost of a ton of newspaper had increased in the decade from \$34.82½ per ton to \$39.23½. The product of the big paper mills had increased in similar ratio. In 1899 it was 262,000 tons, valued at \$19,467,000, and in 1909 there was an increase to 575,000 tons, with a value of \$42,803,000. Here, also, there was an increase in the cost per ton at the mill, as in 1899 this was given at \$69.03, and in 1909 at \$74.44 per ton. The production of fine writing paper increased in the period under review from 90,000 tons to 169,000 tons, and in value from \$12,223,000 to \$24,906,000, which gives an average cost of \$135.81 per ton in 1899, as compared with \$147.72 in 1909. On the other hand, there has been a decrease in the production of manila wrapping paper, the production of which amounted to 89,000 tons in 1899, with a value of \$5,930,000, to 74,000 tons, valued at \$7,012,000. Heavy wrapping paper increased from 83,000 tons, costing \$4,143,000 in 1899, to 109,000 tons, costing \$4,431,000 in 1909, while straw wrapping paper fell from 92,000 tons, costing \$2,028,000, to 33,000 tons, costing \$871,000. The production of boxwood manila paper increased from 204,000 tons, costing \$9,149,000 in 1899, to 368,000 tons, costing \$19,780,000 in 1909, while the output of tissue paper increased from 28,000 tons, valued at \$3,487,000, to 78,000 tons, amounting to \$8,534,000 in value. The total production of wrapping paper in 1911 as reported to the American Pulp and Paper Association by 63 companies was 408,938 tons, or 83

per cent. of normal, of which 99 per cent. was shipped. In 1911 there was produced, an average of 522 tons of writing paper per day, or about 89 per cent. of the normal capacity of the mills. Of this about 97 per cent. was shipped. The amount of news paper produced in 1911, as reported, was 1,204,079 tons, or 98,360 tons more than in 1910. This was equal to about 93 per cent. of the capacity of the mills reporting, and practically the entire production was shipped.

PAPER FROM SAWDUST. See CHEMISTRY, INDUSTRIAL.

PAPUA, TERRITORY OF. A British possession, dependent upon the Commonwealth of Australia; composed of the southeastern portion of the island of New Guinea and the Trobriand, Woodlark, D'Entrecasteaux, and Louisiade groups. Total area, 90,540 sq. miles, European population (1910), 879; colored, other than Papuans, 451; half-castes, 273. The native population is placed at 500,000, but no estimate can be made for unexplored areas in the hinterland. Capital, Port Moresby. Chief crops are coconuts, rubber, sisal-hemp, coffee, cotton, vanilla, tobacco, cacao, tea, etc. Sago, sugar-cane, tobacco, ginger, bamboos, and valuable timbers are indigenous. Gold and copper are mined, and other minerals occur. Imports (1909-10), £120,177; exports, £100,599. Tonnage entered and cleared (1909-10), 294,584. Revenue (1909-10), £35,918; grant-in-aid, £26,000; expenditure, £64,874. Revenue (1910-11), £48,454; grant-in-aid, £30,000; expenditure, £70,699. Lieutenant-governor (1911), J. H. P. Murray.

PAPYRUS, DISCOVERIES OF. See ARCHAEOLOGY.

PARAGUAY. An interior republic of South America. Capital, Asunción.

AREA AND POPULATION. As there is an unsettled boundary dispute with Bolivia, involving a large territory, the actual extent of the republic cannot be accurately stated. For the present the best estimate is 97,722 sq. miles. The census of 1899 showed 643,852 inhabitants; the estimate of December 31, 1906, was 715,841. It is not unlikely that the latter figure is too high even for 1911, as it is believed that, on account of political disturbances, the population has decreased since 1904. The population is mostly a mixture of Spanish, Guarani Indian, and negro origin. Immigration is small, amounting in 1909-10 to only 634 and in 1910-11, 418. The larger towns are: Asunción, with about 60,000 inhabitants; Villa Rica, 30,000; Concepción, 25,000; Carapeguá, 13,000.

Primary instruction is free and nominally compulsory. The presidential message of April 1, 1911, stated that there were 485 public schools, with 45,000 pupils and 861 teachers, and 57 private schools. The state religion is Roman Catholicism, but religious toleration prevails.

PRODUCTION AND COMMERCE. Unfortunately for the country, the small agriculturist has not made much progress; much of the land has been alienated to foreign capitalists and syndicates. But stock-raising has become important, and there are probably some 5,500,000 cattle. Yerba maté is raised in considerable quantities; other products of some importance are tobacco, corn, alfalfa, beans, manioc, and various fruits, especially oranges. Cotton also is raised, and it is hoped that this product, to which the country is excellently adapted, will show a profitable

development. The quebracho tree affords an industry of considerable importance.

Imports and exports, in thousands of pesos (the gold peso is equivalent to the Argentine peso, worth 96.5 cents):

	1906	1907	1908	1909	1910
Imports	5,267	7,513	4,073	3,789	5,473
Exports	2,695	3,236	3,732	5,137	4,099

The leading imports are textiles and food-stuffs; next in importance are hardware and liquors. In 1910, however, railway material and rolling stock amounted to 1,269,165 pesos. Principal exports in 1909: Hides, 1,134,606 pesos; timber, 979,740; quebracho extract, 634,186; yerba maté, 553,629; tobacco, 534,085; oranges, 258,517. The imports come chiefly from Great Britain, Germany, and Argentina, and to the latter two countries is sent the greater part of the exports.

COMMUNICATIONS. Railway in operation in 1911, 232 miles (373 kilometers). The only line is the Paraguay Central, which, until the completion of the extension to Villa Encarnación, had a length of 155 miles, connecting Asunción with Pirapó. During 1910 construction work on the extension (77 miles) progressed rapidly, and the gauge of the older section of the line was changed to conform to that of the Argentine railways. By July 1, 1911, the entire line was open to traffic, thus affording direct rail communication between Asunción and Buenos Ayres (except for the ferry across the Paraná River between Encarnación and the Argentine town Posadas). This makes the trip about 75 hours, including stops, as five days by river steamer. The time was reduced to 53 hours by the end of 1911, when a bridge across the Parana was under construction. During 1911 there was under construction in Brazil a line starting at São Francisco, in Santa Catharina, and projected to the Paraguayan frontier, whence, it was proposed, an extension would finally be made westerly across Paraguay to Asunción. The line, aggregating with the extension about 869 miles, will be, if completed, of much economic importance to the republic. Telegraph, over 60 offices, with nearly 2500 miles of line; post offices (1910), 385.

FINANCE. The budget for 1910 placed the revenue at 1,771,000 pesos gold and 6,236,000 pesos paper; expenditure, 710,552 gold and 27,094,948 paper. The actual revenue for 1910, as reported in the presidential message of April 1, 1911, was 1,480,615 pesos gold and 22,002,226 paper. The gold peso coincides in value with the Argentine peso, 96.5 cents; the paper peso in 1910 was worth $7\frac{1}{2}$ to 8 cents. The budget for 1911 showed estimated revenue of 2,738,000 pesos gold and 9,190,500 paper; estimated expenditure, 999,412 gold and 32,687,228 paper. The English funded debt, December 31, 1910, was 3,920,717 pesos gold; floating debt, 600,000; paper money (1908), 35,000,000. Negotiations were successfully concluded in September, 1911, for a loan of 25,000,000 from Brazilian and French bankers.

ARMY. A small permanent army, consisting of a uniform organization of 4 battalions of infantry, 6 squadrons of cavalry, 5 batteries of field artillery, 2 machine-gun sections, and the coast defense battalions, or a total of about 100 officers and 2500 men, is maintained, in which every citizen between the ages of 20 and 25 is

liable for service. The army is armed with modern weapons, and is under the instruction of German officers. Like other South American republics, the strength of the army varies with political exigencies.

GOVERNMENT. The president is elected indirectly for four years and is assisted by a cabinet of five members. The National Congress consists of two houses, the Senate and the Chamber of Deputies, both senators and deputies being elected by direct vote. In 1910 Manuel Gondra was elected president, being inaugurated in December. He was forced to resign on January 16, 1911, and Col. Albino Jara, the minister of war, assumed office as acting president. On July 5 Jara was seized and expelled from the country, and on the following day Liberato Rojas, president of the Senate, was elected provisional president by the National Congress. Disturbed political conditions, amounting at times practically to civil war, persisted to the end of the year.

HISTORY. The president and vice-president of the republic resigned in January, and the congress in joint session elected as president Colonel Jara, minister of war. It was reported in the first week in July that the officers of the garrison at Asunción had risen against the government, that President Jara was taken prisoner and made to resign, and that congress made a choice, as provisional president, of Señor Rojas, and arranged for a new election later.

PARCELS POST. For more than a decade there had been more or less demand in the United States for the organization by the Postal Department of a parcels post system. When John Wanamaker was postmaster-general of the United States he declared that there were four reasons, and only four, why we do not have a government parcels post in this country, these reasons being the four principal express companies. Since then the subject has been widely discussed, to this Wanamaker statement being added a variety of arguments for and against. The principal proposals which have been discussed during the past year are: 1. An extension of the rural free delivery service to include the delivery of parcels weighing as much as eleven pounds; this proposal takes various forms especially as to the weight limitation. 2. The introduction of a general parcels-post system, including packages of all weights up to one hundred pounds or more. This second proposal also has various modifications depending not only on the various limits which may be set to the weight of packages but also on the system of charges. Shall the charge be a flat rate without regard to distance or shall the zone system of making charges be introduced? 3. The purchase of the express companies and the organization by the government of a single uniform express service to be operated by the postal department. 4. To these three most common proposals has been added the proposition that the government organize a fast freight system in connection with delivery service in cities and in the country for the handling of heavy packages in the transmission of which the element of time is not so important.

INTERSTATE COMMERCE INVESTIGATION. At the request of 211 business organizations throughout the country the Interstate Commerce Commission instituted an inquiry in December into the rates, rules, and practices of the

leading express companies. Hearings were held in New York and elsewhere. It was shown that the express companies give equally good rates on packages of three pounds or less and better rates on heavier packages than the present postal rates. Congressman Lewis of Maryland, who has investigated the parcels post service abroad and who was a principal witness, declared the present express and postal rates on parcels to be prohibitive. He declared the express rates in the United States to be sixteen times the freight rates, whereas abroad they were only five times as great. He thought the scheme to organize a general parcels post, with charges ranging from eight to twelve cents a pound, would prove futile, since these rates are higher than present express rates in many cases. He thought the chief reason why the government must charge such rates is because it pays an average of four cents a pound to the railroads for carrying mail matter, whereas the express companies pay but three-quarters of a cent a pound for a like service. He thought that with equally favorable railroad contracts a government parcels post would prove of superior efficiency. He pointed out that American postal employees in 1909 handled 54,000 pieces of mail each, whereas the average in Germany was only 26,000, and in France and England, 32,000. He pointed out that in 1909 the total express receipts were \$132,000,000, of which \$56,000,000 went to operating expenses, \$64,000,000 to railroads, and \$11,000,000 to profits; yet the total valuation of express company equipment was only \$10,000,000. He thought the government should be able to purchase the express companies for \$40,000,000 of 2½ per cent. bonds, thus entailing a fixed charge of only \$1,000,000. By then reducing the duplicate administrative forces now maintained by five or six principal companies, unifying the plants, eliminating the expenses of some 8000 duplicate offices, and otherwise securing the advantages of consolidation and the elimination of the costs of competition, the government would be able to reduce all rates by one-third and the rates on packages up to fifteen pounds by two-thirds.

OTHER ARGUMENTS FOR. Among the other arguments presented in favor of the government parcels post is the statement that a parcels post service now exists in 43 foreign countries. It is also shown that packages of eleven pounds may be sent through the American post office for foreign delivery, but packages of only four pounds may be sent for domestic delivery. Moreover, the charge on packages sent abroad is less than on packages of the same weight delivered in this country. To the argument that the parcels post is socialistic it is answered that so also is the post office and the school system. It is answered also that the cry of socialism is merely a bugaboo, that the real question is whether the government could render the service demanded with efficiency and economy. It was asked why, if the government can carry four-pound packages, it could not carry seven-pound or eleven-pound packages? It was declared that there is no adequate reason why packages costing twelve cents in England should cost eighty cents in the United States, or why a ten-pound package costing twenty cents in England should cost eight times as much in the United States.

Two associations designed to promote a parcels post are the Postal Progress League and the Postal Reform League. Both organizations

have carried on a campaign of publicity through letters, pamphlets, and reprints of articles and editorials. One of their circulars declared that the government charges 6000 per cent. more for delivery of parcels than the German government; that a German can send a 110-pound package of merchandise from one end of Germany to the other, or even to Austria, for thirty cents; that the charge for registration of such packages is only two to six cents in Germany as against ten cents for a letter in the United States. Although the retail dealers were generally opposed, the agricultural population was generally favorable to the parcels-post idea. It seems clear that the parcels post would extend to the farmers many of the market advantages of cities. Some held that the numerous small retailers increase the cost of goods and should be eliminated by large centrally located concerns with the cheap delivery service of a general parcels post.

THE OPPOSITION. The opposition to the parcels post is led by the American League of Associations, with branches in New York, Chicago, and other principal cities. This is composed of representatives of merchants' associations, department stores, and such organizations as the National Association of Retail Grocers, the National Retail Hardware Association, and the National Association of Retail Druggists. It claims a membership of 300 firms. Its plan has been to arouse the country storekeepers to the danger of their elimination through the rural parcels post and the subsequent creation of a mail-order trust. They point out that at present the retail mail-order houses must pay nearly twenty-five cents for the transmission of their catalogues, whereas under a parcels-post system these would be delivered for five or ten cents. They circulated generally among country merchants a petition containing the following arguments against the parcels post: "It would foster the development of an enormous trust, create an oppressive monopoly, destroy the prosperity of all country towns, ruin thousands and tens of thousands of jobbers and country merchants, drain the rural communities of their capital and population, aggregate the evils of centralized wealth and congested cities, and benefit no one but the great retail catalogue mail-order houses in the big cities and the express companies." They argued that in every town the mail-order agents would spring up for the distribution of catalogues and the solicitation of business.

Retail dealers throughout the country expressed more or less opposition to the inauguration of a government parcels post. Trade associations in Iowa, Nebraska, and Wisconsin held meetings to condemn it on the ground that it would destroy local trade. This opposition of the small dealer was sufficiently general to be considered by some students of the matter the chief source of opposition and the prime cause of government delay in advancing the proposition. Some opponents held that the introduction of this system would be followed by the purchase of the express companies and then of the railroads by the government, thus introducing state socialism.

TAFT'S RECOMMENDATION. In one of his December messages President Taft urged that steps be taken for the immediate establishment of a rural parcels post. He pointed out that the postal service estimates for the ensuing year included \$150,000 for the initiation of the rural

parcels post and for a preliminary investigation cels post. He did not think the latter would injure the country storekeepers, but rather would injure the country storekeepers, but rather would benefit them by putting them in easy and frequent communication with their more distant customers.

PARET, WILLIAM. A Protestant Episcopal bishop, died January 18, 1911. He was born in New York City in 1826 and graduated from Hobart College in 1849. He was ordained a deacon in 1852 and a priest in 1853. From 1852 to 1854 he was pastor at Clyde, N. Y., and from 1854 to 1865 at Pierrepont Manor, N. Y. He was rector of the church in East Saginaw, Mich., from 1865 to 1867 and occupied a pastorate at Elmira, N. Y., from 1867 to 1869. After serving from 1869 until 1876 as rector of a church in Williamsport, Pa., he was pastor in Washington, D. C., from 1876 to 1885. In the latter year he was consecrated bishop of Maryland.

PARIS-MADRID RACE. See AERONAUTICS.

PARIS-ROME RACE. See AERONAUTICS.

PARIS SALON. See PAINTING.

PARKER, QUANAH. An Indian chief of the Comanche tribe, died February 23, 1911. At the age of fourteen, on the death of his father, he became chief of the tribe and he led it on many raids against the whites in Oklahoma and Texas. He finally surrendered to General McKenzie in 1877. He became one of the leaders of his people.

PARMELE, MARY PLATT. An American writer, died May 26, 1911. She was born at Albany, N. Y., in 1843 and received an academic education. She was married to S. J. Agnew and after his death to Theodore W. Parmele. From 1892 she was an extensive contributor of philosophical articles and stories to reviews and magazines. She was the author of a series of short histories of England, France, United States, Germany, etc. from 1892 to 1902. She wrote also *The Kingdom of the Invisible*; *Answered in the Negative*; and *Ariel*.

PATERSON. See NEW JERSEY.

PATRIOTIC SOCIETIES. These societies have as their object the preservation of the records of important historical events and especially of the wars in which the United States has participated; the encouragement of the love of country and the saving and restoration of historical sites and objects, and kindred matters. The most important societies of this nature, including societies of men and women, with the date of their foundation and their membership in 1911, when it could be ascertained, are given in the table in next column:

PATTEN, SIMON N. See LITERATURE, ENGLISH AND AMERICAN, *Religion*.

PATTERSON, JAMES O'HANLON. An American official, former congressman from South Carolina, died October 25, 1911. He was born at Barnwell, S. C., in 1857 and was educated in the Barnwell School and Houghton Institute. He studied law and in 1886 was admitted to the bar. He was for two years probate judge and a member of the State House of Representatives from 1898 to 1904. He was a member of the Fifty-ninth to Sixty-first Congresses, 1905-1911, from the Second South Carolina District.

Founded Members
1910

Army and Navy Medal of Honor Legion	458
Army and Navy Union	1888
Army of the Tennessee Association	1902
Aztec Club of 1847	1847
Colonial Dames of America	1890
Daughters of the Amer. Revolution	1890
Daughters of the Revolution	1891
Daughters of Veterans	1885
Imperial Order of the Dragon	1908
Military Order of Foreign Wars	1894
Military Order of the Loyal Legion	1865
Military Order of the Medal of Honor	1910
National Asso. of Naval Veterans	1887
National Society, Army of Philippines	1900
National Society, Daughters of 1812	1899
Naval and Military Order Spanish American War	1899
Naval Order of the United States	1890
Navy League of the United States	1903
Order of Founders and Patriots of America	1896
Order of Indian Wars of the U. S.	1896
Second Army Corps Association	1909
Society of American Officers	1910
Society of the Army of the Cumberland	1868
Society of the Army of the Ohio	1903
Society of the Army of the Potomac	1869
Society of the Cincinnati	1863
Society of Colonial Wars	1892
Society of the War of 1812	1814
Sons of the American Revolution	1906
Sons of the Revolution	1876
Sons of Veterans	1879
Thirteenth Army Corps Association	1889
Union Society of the Civil War	1909
Union Veteran Legion	1884
United Confederate Veterans	1889
United Daughters of the Confederacy	1894
United Sons of Confederate Veterans	1896
United Spanish War Veterans	1904
Grand Army of the Republic	1866
	203,410

PAVEMENTS AND ROADS. In paving work the use of close-jointed granite blocks, the extension of brick in some sections, the continued popularity of rectangular wood block and sheet asphalt under some conditions, the growing use of Portland cement concrete and also, and more notably, of asphaltic concrete, have been features during the past few years. In the less costly and generally less permanent improvement of light traffic and of country roads, to substitute a bituminous-bound for water-and-dirt or mud-bound broken stone in new work and to lay the dust and preserve the surface of old macadam or broken stone roads with surface applications of specially prepared tar, or with liquid asphalt or asphaltic oils, or less commonly and less satisfactorily with oil having paraffine instead of an asphaltic base. Tar, asphalt, and oil have also been and are still being used, both for mixing with and surface application on gravel, sand, and even whatever ordinary earth may be found in the roadbed; but obviously, while such roads are cheaper than those of broken stone, they are less permanent and satisfactory, the degree of difference depending upon local conditions, and particularly upon the volume and weight of traffic.

Two needs, far from being met, are more specific information as to (1) the relations between the chemical and physical characteristics of the various classes of road and street materials, and the kind and volume of the traffic; and (2) what the traffic amounts to on various roads and streets, both in volume and kind. Much laboratory work is being conducted by the federal, State, and local governments to satisfy the first, and here and there censuses of traffic are being taken to satisfy the second. It still

remains true that the most frequent causes of failure in both pavements and roads are imperfect drainage and deficient foundations, each of which contributes to the destruction of the best roads and pavements. Macadam roads, whether water-bound or bituminous-bound, are particularly liable to damage if penetrated by water from below or from above.

In bituminous road construction there appears to be a growing consensus of opinion that longer life is secured when the tar or asphalt is mixed with the stone (mixing method) than when it is poured on the stone layers and percolates into them (penetration method). It is also being found that the life of water-bound macadam, subjected to motor traffic, may be prolonged quite satisfactorily by building up a relatively thin "mat" or layer of fine road material bound with one of the bituminous cementing methods.

It should be appreciated that each street or road improvement and each class of material used demand special study to meet ever-varying local conditions, if efficiency and economy are to be secured; and that to meet these varying local conditions, as well as the many technical questions involved, the services of the road or pavement engineer and chemist are imperatively demanded.

ROAD CONGRESSES. Many congresses or conventions and sectional meetings of engineering societies were held in 1911 to discuss roads and pavements. Some of these were devoted chiefly to "good roads" propaganda, like the American Road Congress, held at Richmond, Va., in November; while others were strictly or chiefly technical in character. Among the latter were the road section of the American Society of Civil Engineers, and the Organization of City Officials for Standardizing Paving Specifications, each of which met in New York City in January, 1911, and the American Road Builders' Association (composed of State and federal road officials and engineers), which met in Rochester, N. Y., in November, 1911.

STATE ROAD BUILDING. State highway construction and State aid for local highway improvements are being prosecuted on a large scale by a considerable number of States. Massachusetts and New Jersey, which began State highway aid or work in the early nineties, still continue it in a moderate way, while New York, Pennsylvania, Maryland, and California have recently been carrying on very extensive State operations, and altogether more than half the States in the Union have taken up highway improvement in one way or another. Up to November 30, 1911, Massachusetts had built about 880 miles of State road, at a total cost of \$8,013,360, or some \$9000 a mile, including tree planting. Of 42 miles of road improved by Massachusetts in 1910-11, 7% were water-bound macadam, by the bituminous-bound macadam; 14½ miles water-bound macadam with an oil-treated surface; 5½ miles plain gravel, and 4 miles gravel, with a bituminous-bound surface; 4½ miles sand, bound with oil. A total of \$500,000 was spent during the year for the maintenance of roads by the Massachusetts Highway Commission, of which \$300,000 was appropriated by the legislature and \$300,000 derived from automobile fees. The commission recommended the legislature to appropriate \$5,000,000 for road improvement, \$1,000,000 to

be used each year in order that the State might keep pace with its neighbors. Large road bond issues have been authorized by counties in California and other States. An unfortunate feature of road expenditures in a number of States is that the money is being raised by the sale of long-term bonds, sometimes running fifty years, while all past experience indicates that the road surface being put down will not last more than ten years at the most.

THE DELAWARE ROAD. A cross-State highway was started in Delaware in 1911 at the expense and under the direction of Gen. Coleman du Pont. The road will extend from a point on the southern boundary to a point near Wilmington, in the northern part of the State, and will be about a hundred miles long. Elaborate surveys and detailed laboratory tests of road material were conducted in 1911 and some construction was begun late in the year. Thomas Aitken, a Scottish road engineer of note (of Cupar, Fife), and Ernest Storms, of Brussels, Belgium, have been employed as consulting engineers, and Frank M. Williams, lately State engineer of New York, as chief engineer.

ROAD MILEAGE OF THE UNITED STATES. Statistics given out by the United States Office of Public Roads late in 1911 show that the total length of public roads in the United States (not including Alaska and insular possessions) increased from 2,151,379 miles in 1905, to 2,199,387 in 1909, and that the mileage of "improved roads" increased from 153,357 in 1904 to 190,467 in 1909, the corresponding percentages of improved roads to all roads being 7.14 and 8.66, respectively. "Improved roads," as here used, included roads which have been properly graded and drained and surfaced with some hard material.

PEACE SOCIETIES. See **ARBITRATION.**

PEACHES. See **HORTICULTURE.**

PEARY, R. E. See **POLAR RESEARCH.**

PEDRO CAYS. A dependency of Jamaica (q. v.).

PEDRO MIGUEL LOCKS. See **PANAMA CANAL.**

PELLAGRA. There were indications from many sources during 1911 that this disease was spreading in the United States. More than thirty States reported cases, of which there were altogether over 5000, and in Kentucky, Tennessee, North and South Carolina, there was not only an increase in the number of cases, but the disease was discovered in localities never before infected. The situation in North Carolina was considered alarming and the uneasiness was increased by the fact that up to the present the true cause has not yet been found and to the further fact that little or no progress has been made in the prevention and treatment of the malady. Less and less attention was given to spoiled corn as an exciting cause. The general opinion inclined to the belief in a parasitic origin. Sambon's view that a sand fly of the genus *Simulium* carries the germ was confirmed by Roberts of Atlanta, Ga., who found in his section of the country similar conditions to those described by Sambon in Italy. The latter investigator found that the sand fly breeds in water and does not enter the houses; and that lagra to a trematode of the flaria family, which courses. Alessandrini, of Rome, attributed pellagra to a trematode of the flaria family, which is carried in drinking water. Dozzoni believed

the disease to be due to a specific streptobacillus. Another observer, Reed, suggested, as a result of numerous observations, the fungus *Diplodiaeae* as a possible factor. Observers were agreed, however, that pellagra is not contagious. It was noted that pellagra is a much more serious disease in the United States than in Europe, where it has existed for two hundred years. The mortality in some institutions was as high as 90 per cent. The death rate is naturally higher among the insane than among people of otherwise unimpaired health. The treatment has been generally unsatisfactory, although many cures have been reported. Good results have been obtained from the use of hexamethylenamine, an antiseptic drug, which can be taken internally in large doses. Elrod reported symptomatic cures after injecting cacodylate of soda. Salvarsan (q. v.), another arsenic preparation, was also used with reported success. The transfusion of healthy blood into the veins of pellagrins was also tried with some measure of success. In Italy, an official commission was appointed to study the application of the newer views of the etiology of pellagra. The commission reported that the disease had been very much reduced during the last few years by the sanitary regulations adopted by the government. In 1888 Italy had 117 pellagrins to the 1,000,000 of inhabitants, and in 1903 it had only 80 per 1,000,000. In that year the anti-pellagra law was passed and by 1908 the ratio was reduced to 39 per 1,000,000. The pellagrins formed 7.9 per cent. of the inmates of the insane asylums in 1908, while in 1908 they were only 3.5 per cent. In Hungary, on the contrary, a recent report of the public health service announced the appearance of pellagra and its rapid spread in Transylvania (the southeastern part of Hungary). In this country it is generally believed that the disease is due to eating damaged corn, and its prevalence is not surprising in view of the fact that maize is the staple food of the peasantry in this district. This maize is rendered unwholesome by the modern intensive method of cultivation, the grain being cut before it is ripe, with the result that fermentation occurs. The government of Hungary distributed wheat flour among the poorer inhabitants with the hope of limiting the spread of the disease, and it has been found that many of the sick pellagrins recover when they are supplied with wholesome food.

PELLETIER, Sir CHARLES ALPHONSE. A Canadian public official, died in April, 1911. He was born in 1837 of French-Canadian parents. In 1860 he was called to the bar and in 1892 was made president of the Quebec bar. He was elected to the Canadian Senate in 1877 and in 1896 became speaker. He abandoned politics in 1902 and was appointed a justice of the supreme court. In 1908 he was appointed lieutenant-governor of Quebec. He was a Liberal in politics and was, for a short time, in 1877-8 minister of agriculture in the Mackenzie administration.

PELOPONNESUS. See **ARCHAEOLOGY**.

PENANG. See **STRAITS SETTLEMENTS**.

PENNSYLVANIA, **POPULATION**. The Thirteenth Census showed a population in the State in 1910 of 7,665,111, as compared with 6,302,115 in 1900. The principal cities, with their population in 1910 and 1900, are as follows (the figures in parentheses are for 1900): Philadelphia, 1,549,008 (1,295,697); Pittsburgh, 533,905 (321,

616); Scranton, 129,067 (102,026); Wilkesbarre, 67,105 (51,721); Harrisburg, 64,186 (50,167); Johnstown, 55,482 (35,926); Lancaster, 47,277 (41,459).

MINERAL PRODUCTION. The coal production of the State in 1911, according to the United States Geological Survey, was 236,006,762 short tons, valued at \$313,304,812. Of this amount, 84,485,236 short tons was anthracite, valued at \$160,275,302, and 150,521,526 short tons were bituminous, valued at \$153,029,510. In 1910 the total production of the State amounted to 219,037,150 short tons, valued at \$270,266,824. The increase in 1910 was, therefore, 15,969,612 short tons, or 7 per cent. in quantity, and \$34,037,988 or 12.2 per cent. in value. Although the quantity of bituminous coal exceeded that of anthracite by nearly 80 per cent., the value of the anthracite product was larger than that of the bituminous output by nearly 7,250,000. The anthracite mines of the State in 1910 gave employment to 169,497 men, while the bituminous mines employed 175,403 men. The average production of each man employed in the anthracite region was 498 short tons during the year. In the bituminous mines the men averaged 325 tons each. There were 601 men killed and 1050 injured in the anthracite mines of the State in 1910. The fatal accidents in bituminous mines numbered 539 and the non-fatal accidents 1142. In the combined production of anthracite and bituminous coal, Pennsylvania outranks any of the coal-producing countries of the world except Great Britain and Germany, and in 1910 it came within 10,000,000 short tons of equaling the output of Germany.

The iron ore mined in the State in 1910 amounted to 739,799 long tons, valued at \$911,847, compared with 666,889 tons, valued at \$702,672, in 1900. See **IRON AND STEEL**.

The State produces some copper. In 1910 the output was 740,826 pounds of blister copper, as compared with 994,089 pounds in 1909. The output was from the iron mines of Lebanon county.

AGRICULTURE. The Thirteenth Census included statistics of agriculture in the State. These are of date of April 15, 1910. On that date the number of farms in the State was 219,295, as compared with 224,248 in 1900. The land in farms was 18,586,832 acres, as compared with 19,371,015 in 1900. The improved land in farms was 12,673,519 acres, as compared with 13,209,183 acres in 1900. The average acres per farm was 84.8, as compared with 86.4 in 1900. The value of all farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$1,253,274,862, as compared with \$1,051,629,173 in 1900. The average value of all property per farm was \$5715, as compared with \$4690 in 1900. The average value of land per acre was \$33.92, as compared with \$29.70 in 1900. Of the 219,295 farms in the State, 168,190 were operated by owners and managers, 51,105 by tenants. Of the farms operated wholly or in part by owners, those free from mortgage numbered 112,156, and those mortgaged, 50,899. The native-born white farmers numbered 204,917, foreign-born whites, 13,832; negroes and other non-whites, 546. Of the non-whites, 543 were negroes and 3 Indians. The various kinds of domestic animals, poultry and bees in the State in 1910 were valued at \$141,480,052, as compared with a value in 1900 of

\$102,439,183. The cattle numbered 1,586,519, valued at \$47,229,894; horses and colts, 549,756, valued at \$68,055,489; mules, 44,323, valued at \$6,424,039; swine, 977,637, valued at \$7,624,494; sheep and lambs, 883,074, valued at \$3,934,144. Poultry of all kinds numbered 12,728,341, valued at \$7,674,387. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn .....1911	1,435,000	63,858,000	\$43,423,000
1910	1,430,000	58,630,000	34,592,000
Wheat ....1911	1,289,000	17,402,000	16,010,000
1910	1,309,000	23,300,000	21,436,000
Oats .....1911	1,121,000	31,724,000	15,862,000
1910	1,144,000	40,269,000	16,510,000
Rye .....1911	285,000	4,304,000	3,443,000
1910	288,000	4,896,000	3,574,000
Potatoes ..1911	270,000	15,120,000	14,062,000
1910	275,000	24,200,000	12,584,000
Hay .....1911	3,148,000	a 3,148,000	62,960,000
1910	3,212,000	4,433,000	66,495,000
Tobacco ..1911	46,000	b65,320,000	6,205,400
1910	43,000	64,500,000	5,998,500

a Tons. b Pounds.

EDUCATION. The number of school districts in the State in 1911 was 2599. The whole number of pupils was 286,273. The average daily attendance was 1,028,290. There was paid in teachers' salaries, \$20,244,715. The total expenditure for educational purposes was \$42,137,647. The whole number of teachers employed was 36,180. The average salary of male teachers per month was \$160, and of female teachers, \$80.

FINANCE. The receipts for the fiscal year ending November 30, 1911, amounted to \$32,146,978. The expenditures were \$29,132,646. There was a general fund balance at the end of the fiscal year of \$10,526,687. The indebtedness at the close of the fiscal year was \$2,295,510. The assessed value of the personal property in the State for the year 1911 was \$1,198,861.

POLITICS AND GOVERNMENT

There were no important events in State politics proper in 1911, as elections were not held for State officers. There were, however, important municipal elections, which will be described below. The legislature met in 1911, and the most important measures enacted will be found in the paragraph *Legislation* below.

On January 17 John K. Tener was inaugurated governor of the State. Mr. Tener was elected in November, 1910. On January 17 George T. Oliver of Pittsburgh was reelected to a full term (to expire 1917) in the United States Senate, where he was serving the unexpired term of Philander C. Knox, Secretary of State.

The election for mayor in Philadelphia attracted a national interest on account of the peculiar situation developed. The city has been for many years the stronghold of the Republican organization, which always has been under fire of reform elements. Yet charges that corruption had been flagrant under the administration of Mayor Reyburn, a Republican, were made by Republican organization forces, which brought about an investigation by a committee of the State senate. A principal complaint against the several city administrations for many years has been the awarding of contracts by the authorities. The charge was made that large contractors associated with the Republican party had

profited largely through contracts in the city for street cleaning, street paving, the building of boulevards, and the construction of a filtration plant. The investigation ended without notable results. The primaries for the nomination of candidates for mayor were held on September 30. These were the first elections held under the new law providing for State and national elections only in even numbered years; municipal elections only in odd numbered years. In each party were two candidates for the nomination. The candidates for the Republican nomination were William S. Vare, a brother of a contractor largely interested in city contracts, and George H. Earle, Jr., a well-known lawyer of the city. Mr. Vare had the support of Mayor Reyburn, while supporting Mr. Earle was the established Republican organization, headed by Senator Penrose. A combination had been formed by the Democratic party with an independent organization known as the Keystone party, which had for two years fought alleged corruption in State and city politics. The followers of this fusion organization were asked to choose between D. C. Gibboney and Rudolph Blankenburg, who announced themselves candidates for the nomination for mayor. The primary elections resulted in the nomination of Mr. Earle by the Republicans and Mr. Blankenburg by the Democrats. Mr. Earle had a majority of 23,000 over Mr. Vare, and Mr. Blankenburg was chosen by a majority of 37,000 over Mr. Gibboney. In the election campaign the right of Mr. Earle to serve, if elected, was questioned, it being discovered he had voted outside of Philadelphia within five years, and the law requiring that a mayor shall have been a resident of the city continuously for five years next preceding the beginning of his term of office. This cost Mr. Earle many votes. On November 7 Mr. Blankenburg was elected by a plurality of about 4000 votes. Elsewhere in the State the Republicans were successful in electing their candidates for municipal and judicial officers, except in Pittsburgh, where the Keystone-Democratic party succeeded in electing Ambrose B. Reid for judge of the common pleas court. In the city of New Castle the Socialists elected a mayor, 11 councilmen, and 2 assessors. In Wheatland they elected the entire ticket and in Pymatuning township Socialist school directors were elected. Two constitutional amendments were ratified. One empowered the city of Philadelphia to increase its bonded indebtedness from 7 to 10 per cent. of its assessed valuation for improvement of transportation facilities within the city. The other consolidated the common pleas courts of Allegheny county.

Under an amendment to the Second Class City Charter act, Governor Tener on June 5 appointed for Pittsburgh a council of nine business and professional men to serve until January 1, 1912, when their successors, elected in November, 1911, would take office. These councilmen succeeded the bi-cameral councils abolished by the amendment to the charter, which amendment provides that all councilmen shall be elected at large and shall serve four years, a part of the membership being elected every two years. The important change in the system of government is the reduction in the size of the council. The mayor's office is not disturbed. Old councils, elected to represent wards, served without pay; the new small council receives salary

(in Pittsburgh, \$6500 per annum each). Scranton is the other city of the second class and its government underwent a change similar to that of Pittsburgh, but the same importance did not attach to the change there. Governor Tener justified the hopes of the people of Pittsburgh when he appointed the new council for that city; not a man closely identified with politics was in the list. Two of them resigned after a couple of months' service owing to pressure of private business. Their places were filled by men of calibre equal to that of the sitting members and the whole council as then constituted was elected by the people on November 7 by practically unanimous votes, they having on September 30 received the nomination in the primary election of the Republican, the Democratic, and the Keystone parties.

In addition to the measures noted under *Legislation* below, the legislature enacted a school code, revising the school laws of the State. Under it school districts are classified, and control of schools is centralized; in cities the small districts are abolished, taxation is made uniform, and opportunities for graft existing under the old system are wiped out. In Pittsburgh three women were appointed to membership on the board of public education, which controls the schools of the city. Upon advice of Governor Tener, the last interest-bearing debt of the commonwealth having matured and interest payments thereon having ceased, the legislature passed a proposal for a constitutional amendment to permit the issuance of 50,000,000 of State bonds for road improvements and adopted the governor's plan of highway improvements providing for good roads to connect all county seats in the State. A county court of five judges to have jurisdiction in minor cases in Allegheny county was created. The State insurance laws were revised and the State insurance department was reorganized. The consolidation of the State penitentiaries on a farm was authorized and a tract of about 4300 acres has been purchased upon which necessary buildings will be erected by convicts, who also will till the land.

Another step in the prosecution of city officers and others, which for two years had been carried on in Pittsburgh, was the trial of Frank N. Hoffstot, president of the Pressed Steel Car Company, on the charge of conspiracy growing out of the graft exposures of 1909-10. After a disagreement by the jury in one trial, Mr. Hoffstot was acquitted on May 16.

The series of events connected with the Harrisburg capitol frauds came to a conclusion during the year by the restitution of \$1,300,000, and the surrender of warrants aggregating \$200,000, upon which payment had been stopped, by the men implicated by the State in these frauds. In consideration of this payment the State agreed to drop all further criminal action against the defendants indicted. An attempt to bring about a new trial for Joseph M. Huston, the architect of the capitol, who was convicted of fraud, was defeated by the action of the supreme court on May 23, which confirmed the decision of the superior court in denying a new trial. Huston subsequently was paroled.

On September 13 a grand jury at Butler indicted 20 labor leaders and former employees of the Pittsburgh, Harmony, Butler & New Castle Railway Company on the charge of perpetrating dynamiting outrages and other acts of violence

along this road. Sixteen other men were charged with conspiracy to dynamite cars and several were charged with conspiracy to soap or grease the tracks.

On April 7 over 70 miners were killed by suffocation following a fire in the Dunmore, some times called the China vein, of the Pancoast colliery at Throop. On July 16 21 miners were killed in an explosion at the Cascade mine at Sykesville. On August 18 occurred the lynching of a negro at Coatesville. The man had killed a policeman in attempting to escape arrest, and was himself badly injured. He was taken to a hospital, where the leaders of the mob, breaking in, seized him, and carried him a short distance from the town, where he was burned to death. The State constabulary was sent to maintain order, and Governor Tener insisted on a thorough investigation. Nine indictments were found against leaders of the mob, five of whom were acquitted on trial. The others were not tried.

On September 30 the great storage dam of the Bayless Pulp and Paper Company's mill, above the town of Austin, in the north central part of the State, collapsed. The water released from the dam, swept down, destroying the towns of Austin and Costello, with a loss of over 100 lives. More than 500,000,000 gallons of water were released by the breaking of the dam, and the flood was followed by fire. See DAMS.

LEGISLATION. The important measures enacted at the legislative session of 1911 include the following: A measure was passed establishing an insurance department in the State, together with the appointment of an insurance commissioner, who shall have general regulation of insurance companies. A bureau of medical education was established as one of the bureaus of the department of public instruction. An act was passed regulating the practice of medicine and surgery. Fire drills in establishments where women and girls are employed were made compulsory. Measures were passed providing for the health and safety of persons working in and about the bituminous coal mines of the State and for the protection and preservation of property connected therewith. A commission was appointed to inquire into the cause and results of industrial accidents, and to study advanced methods for safeguarding against the same; and to inquire into the subject of fair compensation for those injured or killed as a result of such accidents. An act was passed providing a system of parole and probation for certain convicts convicted of a first offense.

STATE OFFICERS. Governor, John K. Tener; Lieutenant-Governor, John M. Reynolds; Secretary of the Commonwealth, Robert R. McAfee; Treasurer, C. F. Wright; Auditor-General, A. E. Sisson; Adjutant-General, Thomas J. Stewart; Attorney-General, John C. Bell; Superintendent of Public Instruction, N. C. Schaeffer; Insurance Commissioner, S. W. McCulloch; Commissioner of Agriculture, N. B. Critchfield—all Republicans, except Schaeffer, Democrat.

JUDICIARY. Supreme Court: Chief Justice, D. Newlin Fell; Associate Justices, J. Hay Brown, William P. Potter, John Stewart, Robert Von Moschizker, S. L. Mestrezat, and John P. Elkin—all Republicans, except Mestrezat. Prothonotary, Eastern District, James T. Mitchell; Prothonotary, Middle District, William Pearson; Prothonotary, Western District, George Pearson.

STATE LEGISLATURE, 1911. Republicans, Senate 38, House 161, joint ballot 169; Democrats, Senate 12, House 45, joint ballot 57; Independent, House 1, joint ballot 1; Republican majority, Senate 26, House 115, joint ballot 141.

The representatives in Congress will be found in article UNITED STATES, *Congress*.

PENNSYLVANIA TUNNEL. See ELECTRIC RAILWAYS.

PENNSYLVANIA, U. S. S. See NAVAL PROGRESS, NAVAL AERONAUTICS.

PENNSYLVANIA STATE COLLEGE. An institution of higher learning at State College, Pa., founded in 1856. The total enrollment of students in 1911-12 was 2002. The faculty numbered 189. Among the important changes in the faculty taking effect at the beginning of the collegiate year 1911-12 were the following: Dr. Edwin E. Smith was appointed assistant professor of mathematics; Dr. Henry R. Richards was appointed assistant professor of Greek language and literature; Dr. Charles L. Kinslow was appointed third associate professor of electrical engineering. Gifts were received during the year to the amount of about \$10,000. The amount of the productive funds of the university was \$567,000 and the income amounted to about \$450,000. The library contains about 40,000 volumes. The president is Edwin E. Sparks, LL. D.

PENNSYLVANIA, UNIVERSITY OF. There were in all departments of the university in the college year 1911-12 5196 students, divided as follows: College, 3400; graduate school, 408; law school, 374; school of medicine, 385; school of dentistry, 463; school of veterinary medicine, 148; evening school, 239. The faculty numbered 531, of whom 267 were in the college, 112 in the graduate school, 35 in the law school, 170 in the school of medicine, 56 in the school of dentistry, 30 in the school of veterinary medicine, and 5 emeritus professors. The student body was represented by nearly every foreign country. There were 12 from China, 16 from Australia, 7 from New Zealand, 15 from Mexico, 3 from Turkey, 4 from the Philippine Islands, and 16 from Porto Rico. The total productive funds of the university amount to \$6,277,483, and the total income to about \$1,000,000. The provost is Edgar F. Smith, Ph. D. For additional notes relating to the university, see UNIVERSITIES AND COLLEGES.

PENNYCUICK, JOHN. An English engineer, died March 9, 1911. He was born in 1841 and was educated at Cheltenham College and at a military school. Joining the military service he became a lieutenant of the royal engineers in 1858. He served in the Abyssinian campaign in 1867 and received a medal for gallantry. He was for thirty-four years in the public works department at Madras, India. His name as an engineer is chiefly associated with the great Periyar Diversion, for the construction of which he had the chief responsibility. This was a huge masonry dam across the upper waters of the Periyar in the territory of Travancore. By the construction of this dam the river was transformed into a great lake. A tunnel was also constructed for carrying the waters of this lake through the Western Ghat Mountains to the eastern slope of that range to supply the areas of the Madura district. The foundations of the dam were carried away repeatedly before they had proceeded sufficiently

to be out of reach of the floods. Pennycuick was made a colonel in 1887. He was a member of the faculty of engineering in the University of Madras, and was for several years president of the Royal Engineering College in that city.

PENOLOGY. One of the most interesting phases of the new humanitarian movement, which includes in its scope better conditions of life for all of the less fortunate members of society, is the change in the attitude of the public and of prison officials toward the treatment of persons convicted of breaking the laws. Starting from the proposition that criminals are, on the whole, not responsible for what they become, since they are what their inheritance and their environment have made them, there is a tendency to treat them with greater humanity and to control them by more constructive methods. The reformatory with its opportunities to learn trades tends to displace the penal prison with its instruments of torture. New types of prisons are being constructed. Perhaps the most notable in this country is the new circular prison begun by the State of Illinois in 1911. The parole and the probation system and the indeterminate sentence are being gradually extended to practically all classes of even adult male criminals. Farm colonies and opportunities to engage in outdoor labor are being perfected. One of the most notable reforms in this line was the betterment of the conditions of the prisoners in the county jails of several counties in Vermont. Under privileges granted by the law the sheriff of Washington county began to pay county prisoners at the rate of seventy-five cents per day, in addition to keep, for work on the public roads and other public improvements. The result was a remarkable transformation in the attitude of the prisoners.

In other States equally remarkable results followed the treatment of prisoners as human beings. In Oregon, Governor West was directly responsible for a complete revolution in the policy of prison regulation. He began by placing prisoners on their honor within the prison walls and then without. He put men at work on the highways and in making improvements at six other State institutions. Gov. W. Donaghey of Arkansas threw the force of his influence against the cruelties and injustices of the convict lease system. Another line of reform is in the assistance given released convicts to enable them to secure a firm foothold in the social and industrial world. The separation of the sexes in county jails and detention pens; the control and training of delinquent boys and girls; the reclamation of wayward girls and women; the sterilization of certain classes of habitual or congenital criminals—these are among the many movements for raising the level of the lives of those who usually have not had half a chance and who constitute burdens and dangers to society.

STATISTICS. Census Director Durand issued a statement showing that the prison population of the United States January 1, 1911, was 113,579, and that the commitments during the year preceding numbered 479,763. The latter figure includes every class of offense from vagrancy to murder in the first degree. The ratio of prisoners to population was 125 to 100,000, being smallest in South Dakota, 48, and largest in Nevada, 353. The number of commitments was smallest in North Carolina, 123 per 100,-

000, and largest in Arizona, 2992. These differences do not indicate such excessive differences in criminality, but are primarily due to the differences in laws and police vigilance.

PRISON LABOR LEGISLATION. The proper method of utilizing the labor power of prisoners in penal institutions has been given unusual attention in the United States for several years. There have been exposures of shocking conditions in the convict lease systems of some of the Southern States; there have been a number of studies showing the intolerable conditions due to idleness in county jails and some State prisons; there has been a gradual decline of the feeling that prisoners should be made to work as a form of punishment and the development of a rather insistent demand that prisoners shall be allowed to work at useful occupations for their own physical and moral welfare, as well as for their own and the State's economic advantage. Prison labor is employed under various systems known as the lease, contract, piece-price, public account, and State use systems. In general these systems may be classified under State or private management. There is an undoubted tendency toward the reduction of the latter and the extension of the former. State management removes the incentives for exploitation of prison labor by removing the opportunities for private profit which prevail under the control of convict labor by private managers. The tendency is for the State to employ prisoners for its own purposes on State lands, in State mines, or in State factories. Along with this has gone a tendency to pay convicts small wages which may be credited to their own accounts or paid regularly to persons previously dependent upon them. Moreover, the State of Nevada gives the prisoner the right to choose between working on the roads or working indoors. The wages thus paid are in some countries, as in England and Germany, viewed as a privilege, whereas, in others, as in France, they are viewed as a right. Both of these views found expression in American legislation in 1911. Another matter connected with prison labor is the distribution of the product. Organized labor has taken strenuous exception to the sale of prison-made goods in the public markets in competition with the products of private enterprise; such sale forces a competition between free and prison labor. This view has been accepted by the general public. The tendency is, therefore, for goods made by prisoners to be used by the State for its own purposes. In such a case the prisons are credited with the value of such goods at prices as near as possible to prevailing market prices.

The legislation by American States in 1911 may be briefly summarized from the report of the American Association for Labor Legislation. No State extended the powers of leasing or contracting for the labor of prisoners by private employers, though the State of Idaho did extend the field of present leases. This same State, however, provided that convicts might be employed on all public works under direct control of the State. The following twenty-one States made more or less extensive provision for the operation of State industries, whether farms, mines, or factories, with prison labor: California, Florida, Idaho, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, Nevada, North Dakota, Ohio, Oklahoma, Pennsylvania, South Car-

olina, Utah, Washington, Wisconsin, and Wyoming. The following eight States made some provision for the consumption of prison-made articles by the State itself: California, Idaho, Indiana, Missouri, New Jersey, North Dakota, Ohio, and Wyoming. The following six States established rules for the regulation of prices and for the standardization of commodities to be made by convict labor: California, Indiana, Missouri, New Jersey, Ohio, and Wyoming. The following six States provided that the prisoner shall receive some compensation for his labor: Florida, Kansas, Michigan, Nevada, Rhode Island, and Wyoming. These wages are of varying amounts. In Michigan a maximum of fifteen cents a day may be paid the prisoner; in Nevada a wage of twenty-five cents a day is allowed; in Rhode Island prisoners confined for inability to pay fines may be allowed fifty cents a day for such work for the first thirty days and one dollar for ensuing days; in the other States mentioned the wages are at the discretion of some board, but in Wyoming the aggregate wages paid to all prisoners cannot be more than 10 per cent. of the total earnings of the prison. The following five States provided that persons dependent on the prisoners might be given assistance: Colorado, Maine, Massachusetts, Missouri, and New Jersey. In Massachusetts and New Jersey such compensation is contingent on the existence of poverty, the contribution amounting to fifty cents per day that the prisoner works. Florida, in which State a number of charges of peonage have arisen in recent years, endeavored to obviate such conditions in the future by providing that prisoners may work off their fines during imprisonment. Montana, Oregon, and California required the branding of prison-made goods. New Jersey organized a prison labor commission to regulate the manufacture of articles by convicts so as to proportion their production to the amount consumable by the preferred market afforded by the institutions of the State and its subdivisions. The New Jersey law also required a uniform system of accounting and the standardization of commodities and the fixing of a fair price.

THE NATIONAL COMMITTEE ON PRISON LABOR had its origin in the discovery that prison-made goods to the value of \$10,000,000 were being annually shipped into New York City from other States. This raised questions as to the legality of such sales and as to the conditions under which such goods were made. Through the suggestion of Commissioner Williams of the New York State Labor Department a broadly representative committee was appointed. It began the collection of information from the entire country by means of questionnaires and agents and the coöperation of prison contractors and labor unions. The ultimate aim of the committee is to bring about such a condition in prison industry that these shall be carried on under standard conditions with a view to the education and increased efficiency of the prisoner. While the market should be protected from the unfair competition of prison-made goods, the State should not aim to profit by the labor of its prisoners. The committee thus took the position that whatever return over and above costs, including interest on investments, was secured from the sales of such goods should be credited to the prisoners.

NEW YORK PRISONS. Owing to evidence of

inefficiency and even corruption in the management of the State prisons demand arose early in the year for an investigation. The prison commissioner, Cornelius V. Collins, was asked by Governor Dix to resign, but he refused until an investigation was actually started. He then resigned with alacrity and was succeeded by Col. Joseph F. Scott, who had been superintendent of the Elmira and Napanoch reformatories. The governor appointed a commission consisting of M. C. Osborn, D. E. Van Kennan, and John D. McMahon to investigate the State Department of Prisons. They declared in their final report that the prison industries showed "a riot of mismanagement, waste, and wrongdoing," and recommended that their report be submitted to the attorney-general as a basis for prosecution. They found the discipline to be "incredibly lax." This they declared to be the cause of "ineffective operation of shops," "demoralization of the prison population," and "many murderous assaults and revolting crimes." Guard signals in prisons were found to be very generally out of order. "Of a possible market to the State and municipal departments of not less than \$20,000,000 per annum, the prison industries with the free labor of 4400 men and no overhead charges except supervision have supplied less than \$1,000,000 per annum. With an ample field for labor, prison industry has paid only 15.5 per cent. of the cost of prisoners' maintenance." The committee declared that failure to fill orders kept one-third of the men in idleness. They found that wrongdoing had gone hand in hand with waste and mismanagement. Supplies and materials had been handled with criminal carelessness. Prison labor and materials had been used for private purposes by the superintendent of industries at Sing Sing, who moreover was absent one-third of the time, in addition to vacations, and who included a trip to Europe among his traveling expenses.

CANADA. Governor Wilson of New Jersey commissioned Dr. John Handley to visit Canadian prisons and report on their methods and structure. He reported that the Canadian prison system was far in advance of that in the United States. He found that each prison has a large farm attached to it on which at least one-half of the prisoners are regularly employed. He noted the absence of prison walls and the relatively few guards maintained. At the same time investigation showed that escapes were very few. He found that the Canadian idea is that a state prison should be a custodial school, to which a young man or boy may be committed without special disgrace.

GREAT BRITAIN. Following the enactment of the Prevention of Crimes act, Home Secretary Churchill in February set forth certain rules for the administration of that portion of the criminal code. This law made it possible to pass sentences of preventive detention against persons deemed vicious or otherwise likely to commit social nuisances. The secretary stated that the act was not designed to increase the severity of punishment. Under the new rules persons undergoing preventive detention were to be grouped in three grades: Ordinary, special, and disciplinary. After every six months passed in the ordinary grade with exemplary conduct, zeal, and industry, the prisoner will receive a certificate, four of which entitle him to be advanced to the special grade. He will

also get a good conduct stripe with each certificate, carrying privileges or a small money payment. The disciplinary grade is for those punished for misconduct or bad influence. All prisoners under this act will be employed at useful labor in trades or agriculture, or in the prison service. Those of the ordinary and special grades may earn by such labor, and earnings may be used to buy additional food or be sent to families. Rules also allow those showing merit to associate more or less, depending on the grade; a certain freedom for evening association is given to those of the special grade. The rules also prescribe that special religious work shall be carried on. Secretary Churchill also proposed the amelioration of the treatment of prisoners committed for offenses not involving moral turpitude; the reduction of the period of separate confinement of persons sentenced to penal servitude; and the organization of a system of lectures and musical entertainments for these last named prisoners.

Among the other activities of the home secretary relating to the criminal class was an investigation and the trial of experimental methods with reference to the treatment of juvenile offenders. He also accorded recognition to various societies endeavoring to find work for and improve the position of convicts, and brought these societies together into a general council for more effective and economical work. He also appointed a commission to make a general inquiry into the constitution, management, discipline, and educational methods of reformatory and industrial schools in England and Wales.

STATISTICS. The report of the commissioners of prisons and directors of convict prisons for the year ending March 31, 1911, showed a large decrease in the number of persons received in local and convict prisons in both England and Wales. Including persons in prison on civil process the total number of prisoners under sentence during the year was 396,395, a decrease of 13,870 as compared with the previous year. The number convicted on indictments was 167,695, or 464.8 per 100,000 of the population, this being the lowest ratio in thirty years, except in 1900-01. The number of offenders under twenty-one convicted of offenses against property fell 7 per cent. between 1898 and 1911. The number between sixteen and twenty-one years of age committed has fallen 46 per cent. in the last seventeen years. Selecting Stafford Gaol for examination the report stated that one out of every three received for the first time returns a second time; one out of every four becomes an habitual petty offender; but two out of every three find one term a sufficient deterrent to keep them out of prison in the future. The convict class seems to be on the increase partly owing to the improved means of identification and the greater chance of receiving sentence. A large per cent. of the prisoners are feeble-minded or at least below the normal, and accident often determines whether a person is committed to the workhouse, the asylum, or the prison.

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PENSIONS. See UNITED STATES.

PENSIONS, CORPORATION. See OLD AGE PENSIONS.

PENSIONS, GOVERNMENT. See UNITED STATES, *Pensions*.

PENSIONS, OLD AGE. See OLD AGE PENSIONS.

PENSIONS, TEACHERS'. See EDUCATION.

PEONAGE. See ALABAMA, and FLORIDA.

PERKINS, J. B. See LITERATURE, ENGLISH AND AMERICAN, *History*.

PERSIA. A constitutional monarchy in western Asia. Capital, Teheran.

AREA, POPULATION, ETC. Estimated area, 628,000 sq. miles. Population, about 9,500,000; of whom a quarter of a million are Arabs, three-quarters of a million Turks, more than half a million Kurds, and the remainder Persians properly so-called, with various Mongolian admixtures. Less than 1500 Europeans reside in the country. Teheran has about 280,000 inhabitants; Tabriz, 200,000; Meshed, 130,000; Isfahan, 70,000; Kerman, 60,000; Yezd, 45,000.

The children of the higher classes are taught religion and Persian and Arabian literature in Persian colleges; private tutors are employed by the wealthy, and European institutions are maintained by private subscription. Instruction in the Koran is considered sufficient for the people. Nearly 90 per cent. of the population (including the shah) are Mohammedans of the Sh'ah sect; 800,000 belong to the Sunnî sect. The rest are Armenians, Jews, Nestorians, and Parsis.

PRODUCTION. About one-third only of the total area is cultivable; the remainder is desert. Wheat, barley, rice, fruits, silk, wool, cotton, gums, tobacco, and opium are produced in great quantities, and the mineral wealth is incalculable; but trade in these commodities and proper development of resources is hampered by lack of adequate means of transportation and communication. Hand-made carpets are produced. A British company works oil-fields in the south.

COMMERCE. In the table below is given the trade for four years in thousands of krâns (the krân being equal in 1906-7 to about 8.11 cents; in 1907-8, to 9.73; in 1908-9, to 9.05; in 1909-10, to 8.8; and to 8.85 cents in January, 1911).

	1906-7	1907-8	1908-9	1909-10
Imports . . .	431,040	408,434	372,484	442,428
Exports . . .	353,377	317,081	326,207	371,526

The principal articles of special trade in 1909-10 were (in thousands of krâns): Imports: Cotton, 124,170; sugar, 107,267; tea, 27,603; yarn, 10,434; petroleum, 8016. Exports: Raw cotton, 70,015; fruits, 53,200; carpets, 48,441; rice, 24,215; fish, 17,913. Russia sent imports and received exports valued at 228,581,000 and 262,523,000 krâns respectively; Great Britain, 153,327,000 and 31,572,000; Turkey, 16,989,000 and 41,804,000.

Tonnage entered at Bushire, Lingah, Bender

Abbas, and Mohammerah (1909-10), 1,410,891 (British, 1,154,222); at Caspian ports, 718,765 (all Russian). Merchant marine (1909): 1 sailing vessel, of 107 tons (net).

COMMUNICATIONS. Persia's relatively small commerce is largely due to the fact that good roads and railways are few, and transport to points of distribution is slow, difficult, and uncertain. Bands of robbers infest the caravan routes, and for years Great Britain has threatened to interfere unless the trade routes in the south (the British sphere of influence) were properly policed and life and property secured against brigands.

In October, 1910, a British note informed the Persian government that unless order was restored on the southern roads within three months Great Britain would organize a body of local police and pay them out of a surcharge on the Persian Gulf customs. Conditions were so bad that the roads were practically closed. The British course in this matter was approved by Russia, but aroused suspicion in Germany, where the press saw in it an attempt to bring about the partition of Persia. Throughout the Moslem world there was great anxiety as to a British invasion. At the end of October, 1910, a British gunboat landed bluejackets at Lingah on the Persian Gulf. Notes between the two governments followed and the British government, while insisting on the necessity of restoring order in the region, disclaimed any intention of encroaching upon Persian sovereignty. Early in 1911 conditions improved. See below, *History*.

A light railway (Belgian) runs south from Teheran (about six miles). The telegraph system (mainly under the management of India) includes 6312 miles of line, 10,754 of wires; and 131 stations. Post offices reported, 160. There is a Persian minister of posts and telegraphs, who is a member of the cabinet.

FINANCE. The monetary unit is the krân, which fluctuates in value (January, 1911, 8.85 cents). Official statistics for revenue and expenditure are wanting. About half the revenue is from taxes levied in cash or kind upon laboring classes. The remainder accrues from customs, posts, telegraphs, fisheries, mines, and other concessions—in 1907-8 about 80,000,000 krâns. Customs receipts 1909-10, 36,251,000 krâns (1908-9, 32,121,000; 1907-8, 35,885,000). The expenditure regularly exceeds the income, and the burden of indebtedness toward Russia and Great Britain has long been so great as to threaten to crush Persia's independence. Upon the appeal of the Mejliss to the United States government in March, 1911, W. Morgan Shuster was appointed treasurer-general to reorganize the finances, in the face of open opposition from the Russian government, which compassed his removal in December of the same year. Besides a British loan in 1911 of £1,250,000 at 5 per cent., and British, Russian, and French indemnity claims, the debt amounts to £5,470,000 (£3,300,000 to the Russian government, £1,160,000 to the Bank of Russia, £320,000 to the British government, £690,000 to the Bank of England).

ARMY. The reorganization and reform of the army which had been in progress since 1905 was seriously interfered with by internal political disturbances in Persia. The theoretical plan adopted by imperial decree in 1905 involved a more or less formal organization of 12 divisions,

each composed of infantry, artillery, and cavalry, so that a peace strength of 115,000 men, exclusive of the irregular cavalry obtained by tribal levies, would be maintained. That there is no permanence to this force will be obvious from the record of internal troubles given below in the section devoted to *History*.

NAVY. One screw steamer of 600 tons, and some small vessels of little use in war compose the navy.

GOVERNMENT. The reigning monarch is Ahmed Shah Kajar; regent, Abou'l Kassim Khan Nasr-el-Mulk.

HISTORY

INTERNAL POLITICS. Nasr-el-Mulk, who had been elected regent in September, 1910, declared in the middle of February that owing to the prevailing group system constitutional government was impossible, and he demanded the assurance of a stable majority before taking his oath of office. The Mejliss gave him a unanimous vote of confidence.

In a significant address on taking his oath of office on March 4, he pointed to the necessity of developing an efficient government under the constitution. He declared that he would on no account transgress his limited functions as regent, although he was requested from innumerable sources to undertake work which did not properly pertain to him. He said, however, that unless effective action were taken by the authorities he would not sit idly at his post. The cabinet resigned and a new ministry was announced as follows: Premier and Minister of War, the Sipahdar; Minister of Public Works and Education, Ala-es-Sultaneh; Minister of the Interior, Mushteshar-ed-Dowleh; Minister of Finance, Mumtaz-ed-Dowleh; Minister of Posts and Telegraphs, Muavined-Dowleh; Minister of Foreign Affairs, Moteshem-es-Sultaneh, who already held that office. The Mejliss passed the British loan on May 1. Dissensions soon arose in the cabinet concerning its expenditure. The minister of the interior resigned and was succeeded by Sardar Assad. Political conditions throughout the country were disturbed. Several assassinations, attributed to political motives, were reported, including that of the governor of Ispahan and his nephew on February 1, and of Sani-ed-Dowleh, minister of finance on February 7.

RELATIONS WITH FOREIGN POWERS. The British warning of October, 1910, that unless order were restored on the trade routes in southern Persia within three months Great Britain would take measures to police them, was followed by another note in January, 1911, saying that British officers would be employed for this purpose if necessary. At the expiration of the three months conditions had so far improved as to make this intervention unnecessary at present and on February 6 the British government announced its intention to await further developments. In October, however, tribal disputes caused renewed disorder in the region and the British government dispatched a body of troops from the Indian forces to reinforce the consular escorts. Tribesmen attacked a consular officer and his escort in December. (See concluding paragraph.) In April the Russians withdrew their troops from Kazvin whither they had been sent two years before. The Turco-Persian Boundary Conference agreed to submit to a

Hague conference any points on which it could not agree.

THE EX-SHAH'S INVASION. On July 18 great alarm was caused by the news that the ex-shah had landed on the Persian coast. On the overthrow of Mohammed Ali in the summer of 1909, he and his supporter, Arshad-ed-Dowleh took refuge at the Russian legation. From the first the ex-shah resolved to raise the flag again in Persia. He went to Odessa and later to Vienna, where the Russian minister from Belgrade, on being asked to aid him, replied that Russia, owing to her agreement with England, could not intervene in any way in the internal affairs of Persia. He gathered, however, from the minister that nothing would be done to check him. Upon the request of the royalists for a loan of money, the Russian minister declared it to be impossible, but money was raised on the queen's jewels, and this, together with Mohammed Ali's pension, sufficed for the purchase of a small amount of ammunition and some guns which were brought through the Russian customs labeled "mineral water" and not opened. It was planned that the ex-shah's brother, Salar-ed-Dowleh, should enter the country from the Turkish side. Mohammed Ali, and his faithful retainer, Arshad-ed-Dowleh, succeeded in reaching the country in an oil-bat which they took at Petrovsk, Mahammed Ali having a Persian passport under the name of Khalil. They recruited their forces from among the Turcomans, with whom, according to report, he had been intriguing constantly since 1909, despite Russia's express agreement to prevent it. On the news of his arrival the Mejliss placed a price of 100,000 tomans on his head, and toward the end of July a force was sent against him. A government victory was reported in August, inflicting a loss of 300 men on the ex-shah's forces. By September 4 Arshad, in command of a Turcoman force, had come within forty miles of Teheran and taken a strong position near Imanzadeh Jaffar. He was there surprised by Yeprem Khan with a force of about 650, mainly consisting of Bakhtiari, and after a two hours' fight was completely defeated. He was captured with 250 men and a number of guns. On the morning of September 6, after a conversation with his captors, Arshad was executed, displaying marked heroism to the end.

The government troops were equally successful against Salar-ed-Dowleh at Baghishah on September 27, inflicting a loss of 200 killed and 400 wounded, and capturing a number of guns. Within a few days the insurgent forces of this division were completely dispersed. There were reports of some Turcoman successes, but on November 17 Salar-ed-Dowleh was defeated about 65 miles south of Hamadan by one of the Bakhtiari chiefs with a loss estimated at 500.

AMERICAN FINANCIAL ADVISERS. A plan for the reorganization of the financial administration under American supervision having been approved, the Persian minister conferred with the State Department at Washington in January, asking for the appointment of American financial experts, including a treasurer-general and a director of taxation. At the recommendation of President Taft Mr. W. Morgan Shuster, formerly of the Philippine service, was appointed treasurer-general. With him were associated Mr. F. S. Cairns of the Philippine customs service, as director of taxation, Mr. Charles I. McCaskey of the New York customs house as inspector of

provincial revenues, and Mr. Bruce C. Dickey, formerly of the Manila custom house, as inspector of taxation. It was understood that the Russian government would raise no objection. The powers accorded to the new treasury-general were very extensive, giving him full control in every financial measure, including the right to supervise the expenditure of the new loan, according to the supply vote of the Mejliss, on his own responsibility and without the mixed commission. One of his earliest acts was to propose the organization of a gendarmerie to enforce the collection of the revenue. Early in his administration he encountered a difficulty in carrying out his plans through the attitude of the Russian officials. A difference arose owing to the latter's demand that certain Russian charges should be paid through the customs department instead of through the treasurer-general, but this was soon settled. There was more serious friction over Mr. Shuster's appointments, the Russian authorities objecting to his choice of British subjects for certain offices. The chief instance was Mr. Shuster's selection of Major Stokes of the British army, who had been serving as military adviser, for the post of organizer of the new revenue gendarmerie. Russia objected to the appointment as violating the Anglo-Russian agreement of 1907, in that a British officer would be charged with executive duties in northern Persia, the Russian sphere of influence, and the British government supported this objection, and withdrew its consent to the appointment. Mr. Shuster issued a vigorous public statement protesting against the action of both the British and the Russian governments in the matter.

THE SHUSTER AFFAIR: THE RUSSIAN DEMANDS. In the latter months of the year the energetic measures taken by the young American treasurer-general to enforce the law led to a serious break with Russia. The great landlords who sought to evade the payment of taxes and the corrupt members of the upper and official classes were compelled to obey the law and pay what was due the government. The treasury gendarmes seized the property of Prince Firman Firma and threatened that of the Sipahdar for arrears of taxes. The Mejliss showed its intention to stand by Mr. Shuster in his determination to secure an honest administration. The Russian government, however, pronounced his measures too drastic. It, moreover, objected to Mr. Shuster's appointment of British subjects to administrative positions, as in the case of Major Stokes, above mentioned, and of another official who was appointed treasury inspector at Tabriz, in the autumn, and in both these instances the British foreign office supported the Russian objection to the appointments. In reply Mr. Shuster accused Russia of hostility to his plans for reform and blamed the British government for its acquiescence in the Russian aggressions. Finally matters came to a crisis when the treasury gendarmes seized the property of Shuaes-Sultaneh, which had been confiscated on account of his participation in the attempt of his brother, the ex-shah, to regain the throne. Early in November Russia sent a protest, alleging that the gendarmes had insulted two Russian consular officers and demanding an apology and the removal of the gendarmes, who should leave the property in the hands of Cossacks till the matter was adjusted by the Russian bank. The Persian government was unwilling to tender an apology,

but offered to make a complete investigation, whereupon on November 16 Russia decided to occupy Kasvin.

Meanwhile, Mr. Shuster, in a long communication to the *London Times*, had set forth his views of the situation. He said the only way of reforming the Persian finances was to restore order and maintain a central government strong enough to enforce its decrees. If foreign governments continued to checkmate on one pretext or another all efforts at reform and to ruin the Persian government's prestige, while keeping the country in a state of financial collapse, financial regeneration would be impossible. He complained of "flagrant bullying by outsiders, varied by 'finger-on-the-nose' diplomacy," of the difficulties thrown by foreign governments in the way of raising money, of the requirement that the railways, if built, must be coterminous with Russian and British spheres of influence, and of the demand that "if officers of experience are to be taken into the Persian service they must come from a minor power, or prove themselves to have been of the spineless, nerveless type of which the tools of foreign interests are produced." His attitude was highly commended by the press, especially in the United States. In official and semi-official British quarters it was generally assumed that Mr. Shuster had gone too far and had not recognized the actual situation as it concerned the relations of Great Britain and Russia. As to Russia's course in sending an ultimatum in this matter, Sir Edward Grey, when asked in the House of Commons on November 14 whether it was not in violation of the Anglo-Russian agreement for the maintenance of Persian integrity and independence, said that it was not and declared that Great Britain had no direct concern in the question that had caused the trouble. As to Mr. Shuster's appointments, he said that the choice of British subjects for posts in northern Persia was against the spirit of the understanding with Russia and would provoke counter-measures on Russia's part. Neither British nor Russian subjects ought to be appointed on the respective Russian and Indian frontiers. The public generally sympathized with Mr. Shuster throughout the affair, and there was no little criticism of Sir Edward Grey even among the members of his own party for his conduct in regard to this and other important foreign questions.

THE RUSSIAN ULTIMATUM. On November 29 a Russian ultimatum was issued requiring the immediate dismissal of Mr. Shuster, the consent to Persia to follow the advice of Russia and Great Britain in choosing foreign advisers, and an indemnity for the expenses of the Russian troops in Persia. There was at first a feeling in certain quarters in the United States that the government ought to intervene on behalf of Mr. Shuster, but as it became evident that his personal safety was not in question, such action was not taken. In Great Britain, Sir Edward Grey, in an address on foreign policy to the House of Commons on December 14, declared that while Mr. Shuster's intentions in making his appointments were good, the result of that policy would be to Auglicize the Persian service, and he said that he agreed with Russia's demand that Persia should obtain the formal consent of the British and Russian legations to the appointment of foreign advisers, and that Mr. Shuster should immediately be replaced by a financial adviser acceptable to both Great

Britain and Russia. He said that he had heard from St. Petersburg that the Russian force would not advance from Kasvin except in very extraordinary circumstances. In regard to the alleged designs of Russia for the restoration of the ex-shah, the foreign secretary said that Russia had given a categorical assurance that she had no intention of that kind and had declared that that she would not recognize the ex-shah's government if he were restored. The British government was criticised by a member of the Liberal party for its course in regard to Mr. Shuster, whose exact crime, he said, was merely that he did not call at the Russian legation as often as he ought to have done.

On December 1 the Mejliss passed resolutions to the effect that whatever might result to Persia by a foreign power's recourse to *force majeure* the independence of the country must not be voted away. Thereupon the foreign minister, who urged immediate assent to the Russian demand, resigned. The answer to the Russian ultimatum was a refusal to dismiss Mr. Shuster. Russian troops thereupon began their advance from Resht. Up to the last moment the British government urged the Persian government to yield to the Russian requirements. There were public demonstrations of hostility against Great Britain, who was accused of having acted in bad faith and against the cause of Persian integrity and independence. In regard to the charge of Sir Edward Grey that Mr. Shuster had tried to Anglicize the Persian service, the latter said he had chosen his officials simply on account of their abilities and their knowledge of the Persian language. He had found several Englishmen with the necessary qualifications, and two Belgians, but no Russians. But he had since dismissed his British officials, with the exception of one who was under contract. Major Stokes had been released from his engagement, though it had been made under conditions formulated by the British government. He further said he had never appointed any officers to whom Russia objected. Major Stokes's contract was never signed owing to Russia's objections. The Tabriz treasury inspector, Mr. Lecoffre, was not a new appointment. He had already been two years in the Persian service and in the so-called Russian sphere, and was merely transferred to another post.

PERSIA'S SURRENDER. On December 24, the regent, announcing that the Mejliss hampered the action of both the external and internal administration of the country, pronounced the session at end. A coup d'état was executed that afternoon by a number of irregular troops supporting the cabinet, and the deputies were forcibly driven out and dispersed. The cabinet took the affair with Russia into its own hands and decided to accept the Russian demands and to order the dismissal of Mr. Shuster. A conciliatory reply was dispatched to Russia saying that the Persian government regretted what had occurred and would henceforth appoint no advisers without an exchange of views with the Russian and British legations. The Russian advance, however, continued and despite the Persian submission the Russians took summary vengeance on the natives who had attacked their troops. There were reports of severe fighting at Tabriz where it was said that the Russians had killed 500 persons, and were butchering women and children. The Russians denied the charges of inhumanity as calumnies, and retorted that the

Persian tribesmen were committing atrocities. On December 26 an attack on a British force was reported in the south. The British consul, W. A. Smart, with his escort of Indian troops, was attacked near Kazerun by about 700 Kashgai tribesmen, while on his way to Shiraz, and he himself slightly wounded. Prompt apologies were tendered to the British representatives and exemplary punishment of the offenders was promised. Meanwhile, Mr. Shuster had been notified of his dismissal, but delayed until he could arrange for the appointment of his successor. He named his principal American assistant, F. S. Cairns, to hold office in the interval, but the government refused to recognize him.

PERSIMMONS. See HORTICULTURE.

PERU. A South American republic, on the Pacific coast between Ecuador and Chile. The capital is Lima.

AREA AND POPULATION. Neither the territorial extent nor the number of inhabitants has been accurately determined. The boundaries with Bolivia were fixed in 1909 and with Brazil in 1910, but there remain boundary disputes with Ecuador and Colombia. At present the most plausible estimate of the country's area seems to be about 679,000 sq. miles. The population has been estimated at 4,500,000, but this figure is doubtless excessive; there appears to be some doubt as to whether the population is increasing. About one-half of the population is Indian, and most of the remainder mestizo. The larger cities are: Lima (140,884); Callao, 34,436; Arequipa, 35,000; Cuzco, 30,000; Ayacucho, 20,000; Iquitos, 20,000.

Primary instruction is free and nominally compulsory. Recent educational statistics are not available; at the beginning of 1909 there were 2339 public primary schools, with 3105 teachers and 162,298 pupils. Some provisions are made for higher instruction. Recently, it is reported, considerable attention has been given to educational development; in 1910 the old University of San Marcos (founded 1551) at Lima was enlarged and the university at Cuzco, for a time inactive, was reopened. The State religion is Roman Catholicism; the public exercise of other religious forms is unlawful.

INDUSTRIES, COMMERCE, ETC. Peru is distinctively a mining country. The most important metals worked are copper and silver; but many minerals occur, and to some extent are exploited, including petroleum, coal, gold, and lead. Leading crops are sugar-cane, cotton, rice, and coffee. Other products are rubber, coca, and cacao. The raising of sheep, alpacas, and llamas is of increasing importance.

Imports and exports (except those of the department of Loreto) are reported as follows, in thousands of soles:

	1904	1907	1908	1909	1910
Imports	42,980	55,198	52,956	43,565	46,313
Exports	40,666	57,445	53,757	61,334	64,083

The leading imports are cotton and woolen textiles, and machinery and metal wares. The leading exports for 1908 and 1909 respectively were valued as follows, in thousands of soles: Minerals and metals, 16,380 and 16,010; cotton, 7980 and 12,460; sugar, 10,480 and 11,600; rubber, etc., 6090 and 11,370; rice, 5990 (in 1909); wool, 2970 and 3940. The trade is largely with Great Britain and the United States, with Ger-

many ranking third. In 1909 there entered, in the foreign trade, at the port of Callao 649 vessels, of 1,299,439 tons.

At the end of 1910 the reported length of railways in operation was 2665 kilometers (1656 miles), of which 2040 kilometers (1268 miles) were standard and 625 kilometers (328 miles) narrow gauge. About 1800 kilometers are operated by the Peruvian Corporation, Ltd. This corporation also owns and operates a line of steamers on Lake Titicaca, by which, together with the Guaqui-La Paz railway in Bolivia (purchased by the corporation in 1910), direct communication is maintained between La Paz and the corporation's line which reaches the coast at Mollendo. Important contracts were let during the spring of 1911 for the construction of the Repartición-Alpas extension of the Supe-Barranca line, while three new lines were opened, the Sicuani to Cuzco, the Oroyo to Huanuco, and the Yonan to Chilata. The president of Peru approved the law passed by the Peruvian Congress relating to the construction of railway branches from Trujillo to the mining camps at Salpo and Quiruvilca. This line was of especial importance, as it would open up for rapid development a large area of rich coal deposits. The branch line of the Oroyo-Taena Railway to Puerto Wertheman was also approved. Telegraphs (1910), 11,381 kilometers of line, with 254 offices; post offices, 664.

FINANCE. The monetary standard is gold. The Peruvian libra is equivalent to the English sovereign (\$4.8665) and is divided into ten soles. In 1910 the revenue amounted to 27,987,750 soles, and the expenditure 26,853,220 soles. The principal receipts were: Customs, 12,435,720 soles; taxes, 10,507,450; monopolies, 990,320; posts and telegraphs, 1,214,030. The larger items of ordinary expenditure: War and marine, 5,438,310; administration, 5,134,720; finance and commerce, 4,126,490; justice and public instruction, 3,745,210; public works 1,147,370; legislative, 873,380. The budget for 1911 balanced at 27,845,130 soles. The present foreign debt, contracted in 1909, amounts to £1,680,000. The interior debt, in July, 1911, stood at £2,660,645 with interest and £1,142,585 without interest.

ARMY. The reorganization of the army of the Republic of Peru was being carried on under the direction of Colonel Clément and other French officers. Service is compulsory, and the annual contingent of recruits is fixed by the ministry of war to meet existing conditions, both military and economic. The organization in 1911 on a peace basis consisted of 6 battalions of infantry, comprising about 160 officers and 2300 men, 6 squadrons of cavalry with 72 officers and 750 men, 3 batteries of field artillery armed with Schneider guns, 4 mountain batteries with 36 Krupp guns, having a strength of 50 officers and 800 men, and an independent section, and a mixed battalion of foot artillery. There were also a cadet troop and garrisons at Loreto and at Madre de Dios. From this army it was estimated that 24,000 men could be mobilized, and, in addition, there were reserves, and a territorial force with but little military training and discipline.

GOVERNMENT. The executive authority is vested in a president, who is elected by direct vote for four years and may not be reelected for a second consecutive term. The legislative power devolves upon a congress of two houses,

the Senate (52 members) and the House of Representatives (116 members), both senators and representatives being elected by direct vote for six years. The president in 1911 was Augusto B. Leguía, who was inaugurated September 24, 1908; first vice-president, Eugenio Larrañure y Unanue; second vice-president, Belisario Sosa.

HISTORY. In January, 1911, it was announced that the rebels in the south had been dispersed and that the government believed that order throughout the republic had been restored. Bolivian and Peruvian representatives signed a protocol for the settlement of all difficulties between the two governments, and it was understood that any differences of opinion should be referred to the Hague Court of Arbitration. It was reported early in August that a battle had taken place between the Peruvian and Colombian troops at Caqueta, news of the agreement between the two countries not having arrived in time to avert the conflict. The frontier dispute with Ecuador remained unsettled on account of the latter's refusing to refer it to the Hague Tribunal in accordance with the advice of the United States, Brazil, and Argentina. A new cabinet under the presidency of Señor Austín Ganoza took office on August 30.

PERU-ECUADOR, DISAGREEMENT OF. See PERU.

PERUVIAN EXPLORATION. See EXPLORATION.

PETRIE, M. F. See LITERATURE, ENGLISH AND AMERICAN, *History*.

PETROGRAPHY. See GEOLOGY.

PETROLEUM. The petroleum industry of the United States has been characterized for the four years from 1906 to 1910 inclusive by a phenomenal increase. In 1907 the output reached 166,000,000 barrels, in 1908, 178,000,000 barrels, in 1909, 183,170,874 barrels, and in 1910, 209,556,048 barrels, a gain of 14.4 per cent. over the production of 1909. This brings the total output since the beginning of the industry in the United States to more than 2,000,000,000 barrels. That the output is in excess of the normal demand is shown by the fact that 209,000,000 barrels in 1910 brought a smaller total value (\$127,896,328) than 183,000,000 barrels in 1909 (\$128,328,487). As the production has gone up, the average price per barrel has gone down from more than \$1 per barrel in 1900 to 61 cents in 1910.

The cause of this great increase in production has been the successive development of four great fields to the west of the old production centres. In rapid succession came the development of the Gulf field in Texas and Louisiana, the Mid-Continent field in Kansas and Oklahoma, and the Illinois field. In the meantime, the production in California had increased so rapidly that in 1909-10 it was the dominant centre of interest in the industry, outstripping the production of any other State. The total quantity, in barrels, and value of petroleum produced in the United States in 1909-10, with the average price per barrel, are shown in the table on next page:

For the first time in many years there was no change from the previous year in the rank of the principal oil-producing States.

The increase of the use of fuel oil by railroads has come in recent years to be an important development. During the year 1910 the quantity of fuel oil consumed amounted to 24,586,103

State	1909			1910		
	Barrels	Value	Per bar.	Barrels	Value	Per bar.
California	55,471,601	\$30,756,713	\$0.544	73,010,560	\$35,749,473	\$0.490
Colorado	310,861	318,162	1.023	239,974	243,402	1.016
Illinois	30,898,339	19,788,864	.640	33,143,362	19,669,383	.593
Indiana	2,296,086	1,997,610	.870	2,159,725	1,568,476	.726
Kansas	1,263,764	491,633	.389	1,128,668	444,763	.394
Kentucky	639,016	518,299	.811	468,774	324,684	.693
Louisiana	3,069,531	2,022,449	.661	6,841,395	3,574,069	.522
Michigan	5,750	7,830	1.362	3,615	4,794	1.326
Missouri						
New York	1,134,897	1,878,217	1.655	1,053,838	1,414,668	1.342
Ohio	10,632,793	13,225,377	1.244	9,916,370	10,651,568	1.074
Oklahoma	47,859,218	17,428,990	.364	52,028,718	19,922,660	.383
Pennsylvania	9,299,403	15,424,554	1.659	8,794,662	11,908,914	1.354
Texas	9,534,467	6,793,060	.712	8,899,266	6,605,755	.742
Utah	20,056	34,456	1.718	115,430	93,536	.810
Wyoming						
West Virginia	10,745,092	17,642,283	1.642	11,751,871	15,720,184	1.338
Total	183,170,874	128,328,487	.701	209,556,048	127,896,328	.610

barrels, as compared with 10,939,394 barrels in 1909. The average number of miles operated per barrel of oil consumed was 3.74. The increasing use of fuel oil is due to many causes. It has been demonstrated by tests made on some of the railroads accessible to the oil fields and refineries of the West, where fuel oil can be purchased cheaply, that the cost of operating with oil is less and its use equally efficient as with coal, especially in those localities where the price of coal for one reason or another is high. Another reason for the use of oil is the prevention or the elimination of forest fires. Oil is also much safer and cleaner for travelers, as there is no smoke or cinders. Experiments have been carried on with great success as to the use of fuel oil in the United States navy. In the construction of new vessels fuel oil is now more and more extensively used. Several torpedo-boat destroyers burn oil exclusively, and the eight most recent battleships constructed burn oil as auxiliary to coal. The battleships authorized by the Sixty-first Congress will burn oil only. Six steel tanks for fuel oil for the use of the navy will be erected, one each at Bradford, R. I., Norfolk, Va., Charleston, S. C., Key West, Fla., Guantanamo, Cuba, and San Juan, Porto Rico.

FOREIGN COUNTRIES. In Canada there were produced in 1910 315,895 barrels of petroleum, valued at \$388,540. In Mexico the production in 1910 was 3,313,807 barrels. Peru produced petroleum to the amount of 1,330,105 barrels.

The production of petroleum in Russia is second to that of the United States. In 1910 the output from all fields was 70,336,574 barrels, as compared with 65,970,350 barrels in 1909. This was due to the increase in the Grosny field. The Baku district remained almost stationary, contributing, however, the greater part of the production. The production of petroleum in Austria-Hungary amounted in 1910 to 12,673,688

barrels, a decrease of about 2,000,000 barrels from the output of 1909. The production of the oil fields in Rumania was 9,722,957 barrels, as compared with 14,932,799 barrels in 1909. Petroleum in smaller quantities is produced also in Germany, Great Britain, Italy, British India, Japan, and the Dutch East Indies. The world production of petroleum from 1906 to 1910 is shown by countries in the table at the foot of this page (in barrels of 42 gallons), together with (1910) production in metric tons and percentage of total production.

The production of petroleum in 1911, according to the preliminary estimates of the United States Geological Survey, slightly exceeded that of 1910. The total production was in round numbers, 217,000,000 barrels, as compared with 209,556,048 barrels in 1910. Of the total in 1911, 81,000,000 barrels came from the California fields, 56,000,000 barrels from the Kansas and Oklahoma fields, 38,000,000 barrels from miscellaneous fields, 28,000,000 barrels from the Appalachian field, 10,000,000 barrels from Louisiana, and 9,000,000 barrels from Texas. The most striking feature of the year in the industry was the development of the Electra oil field in northern Texas.

During the year the use of oil in place of coal continued to increase. Oil as a fuel was experimented upon in many industrial establishments with success. The exports of oil increased from about 165,000,000 gallons for the first eleven months of 1910 to 183,000,000 gallons for the corresponding period of 1911. There were large importations of crude oil, especially from Mexico, which was imported into Texas and Louisiana ports. This was the result of placing crude oil and certain products on the free list. In 1911 gasoline was for the first time imported into the United States, 7,639,125 gallons being brought from the Dutch

Country	1906	1907	1908	1909	Rank	1910		Per cent.
	Bar.	Bar.	Bar.	Bar.		Bar.	M. tons	
United States....	126,493,936	166,095,835	178,527,355	183,170,874	1	209,556,048	27,940,806	63.99
Russia	58,897,311	61,850,734	62,186,447	65,970,350	2	70,336,574	9,378,210	21.48
Galicia	5,467,967	8,455,841	12,612,295	14,932,799	3	12,673,688	1,762,560	3.87
D. E Indies....	3,180,657	9,982,597	10,283,357	11,041,852	4	11,030,620	1,495,715	3.87
Rumania	6,378,184	8,118,207	8,252,157	9,327,278	5	9,722,958	1,352,289	2.97
India	4,015,803	4,344,162	5,047,038	6,676,517	6	6,137,990	818,400	1.87
Mexico		1,000,000	3,481,410	2,488,742	7	3,332,807	444,374	1.02
Japan	1,710,768	2,010,639	2,070,145	1,889,563	8	1,930,661	257,421	.59
Peru	536,294	756,226	1,011,180	1,316,118	9	1,330,105	177,347	.40
Germany	578,610	756,631	1,009,278	1,018,837	10	1,032,522	145,168	.32
Canada	569,753	788,872	527,987	420,755	11	315,895	42,119	.10
Italy	53,577	59,875	50,966	42,388	12	42,388	5,895	.02
Other	a 30,000	a 30,000	a 30,000	a 30,000	13	a 30,000	4,000	
Total	212,912,860	264,249,119	285,089,615	298,326,073		327,472,256	43,824,304	100.00

a Estimated.

East Indies. The importation of other oils, chiefly crude oil from Mexico, amounted to 3,831,295 gallons for the first eleven months of the year.

PETROPAVLOSK. See **BATTLESHIPS.**

PHARMACY SCHOOLS. See **UNIVERSITIES AND COLLEGES.**

PHILADELPHIA. See **BUILDING, ARCHITECTURE, AND PENNSYLVANIA.**

PHILADELPHIA ACADEMY. See **ART.**

PHILIPPINE ISLANDS. POPULATION. The latest available figures for population of the Philippine Islands is for 1903, when the total population was 7,635,426, of whom 647,740 were wild peoples. The average density of population was 67 per square mile.

AGRICULTURE. The agricultural development of the islands had been prevented by epidemics among cattle, destructive hurricanes, and other causes. An attempt was made by the United States government to alleviate financial difficulties by the establishment of an agricultural bank in 1908. This, however, has not met with the success that was anticipated on account of the difficulty of providing capital. The principal agricultural products of the islands are sugarcane, rice, hemp, and tobacco. Coconut oil is also made in considerable quantities. Coffee was formerly produced, but efforts to raise it have been abandoned, and hemp has been substituted as more profitable. In general, the value of the agricultural products of the islands is shown in the paragraph on *Commerce*.

COMMERCE. The total exports for the fiscal year 1911 were \$39,778,629, as compared with \$39,864,169 in 1910. The total imports for the year amounted to \$49,833,722, compared with \$37,067,630 in 1910. The imports included government supplies, and railroad supplies. Cotton and manufactures were imported to the value of \$10,395,480, and constituted 20 per cent. of all imports. The United States led in the value of imports, and was followed by Great Britain. Imports of iron and steel manufactures amounted to \$5,887,185, of which the greater portion came from the United States. In the exports of the year manila hemp retained its foremost place, but declined both in actual value and relative importance in the face of substantial gains made by copper and sugar, each of which established new high record values in 1911. The cigar trade suffered a heavy decline from the abnormal figures created by the first year of the free access to the American market. Exports of hemp amounted to 163,033 long tons, valued at \$16,141,340; copper exports were 113,775 long tons, valued at \$9,899,457. The sugar exports were 147,016 long tons, compared with 125,699 long tons in 1910. The value was \$8,014,360, or about \$1,000,000 more than in 1910. The export of cigars in 1911 was 22,974,000, compared with 83,931,000 in 1910.

EDUCATION. The annual enrollment for the school year 1910-11 reached 610,493 (this figure does not include 5302 pupils enrolled in the schools on the Moro province, whose administration is independent of the Bureau of Education), as against 587,317 for the preceding year; the highest enrollment in any one month was 484,689, as against 451,938 for 1909-10; the average daily attendance was 395,537, an increase of 31,489 over that of the preceding year. The total number of schools in operation was 4404, and the total number of American and Filipino teachers on duty at the close

of the school year was 9086. Of the total annual enrollment of 610,493, 582,115 are in the primary classes, 24,974 in the intermediate classes, and only 3404 are enrolled in the secondary course. There were 38 secondary schools, 245 intermediate, and 4121 primary schools, making a total of 4404 schools. Of those enrolled, 298,200 were boys and 186,489 girls. Of these, there were in the primary schools 278,900 boys and 181,117 girls, a total of 460,026; in the intermediate, 16,778 boys, 4822 girls, a total of 21,700; in the secondary schools, 2513 boys and 450 girls, a total of 2963. The proportion of males to females is as 3 is to 2.

The total number of American teachers was 683; Filipino insular teachers numbered 1054; Filipino municipal teachers numbered 7190; apprentices, 159, making a total of 9086. The American and Filipino teachers receive salary from the insular government. The Filipino municipal teachers receive salary from the towns which employ them. Apprentice teachers are Filipinos serving without salary. Of the Filipino teachers, 148 men were engaged in district supervision; 8 men and 7 women were giving secondary instruction, and 273 men and 93 women were teaching in intermediate schools, while 429 men and 93 women were teaching in primary schools. The arts and trades, normal, domestic science, agricultural, and special insular schools are included in intermediate or secondary schools. The highest number of schools in operation at any time during the school year was 4606, in September, 1910. The schools in the non-Christian provinces of Agusan, Mountain, and Nueva Viscaya numbered 101, with 136 teachers. The total expenses for the year were P198,924.61. Total enrollment was 13,061. Average daily attendance was 8830. Number of non-Christian schools in provinces was 41, with 59 teachers, for which the total expenses was P23,608.16. Total enrollment, 2983, and average daily enrollment, 1974.

During the year 1911 the Philippine legislature voted the sum of 4,954,432 pesos for the bureau of education.

During the fiscal year the University of the Philippines was organized in its definite form and now includes the following colleges: College of Liberal Arts, College of Medicine and Surgery, College of Agriculture, College of Veterinary Science, College of Law, College of Engineering, and the School of Fine Arts. The total registration of students in the various departments in August, 1911, was 1220.

RAILROADS. The effect of the construction of railroads has been very beneficial. The Manila Railroad Company during the year has opened up its lines to the following points: Batangas, on the Manila-Batangas line; Mojon, on the Calamba-Santa Cruz line; Santa Cruz, on the Noveleta-Naic line; and Rosales, on the Paniqui Tayug line. The opening of these lines has had an almost magical effect in stimulating industry and fostering production; territory in which crops had not been harvested for years is now being cared for, and particularly in the provinces of Batangas, La Laguna, and Tayabas, the advent of the railroad seems to have made the difference between a backward and a progressive situation.

The total kilometrage of railway lines authorized by law is 1804.7, of which 923.5 kilometers have been constructed and are in operation, and 51.1 kilometers constructed and not in

operation, leaving 830.1 kilometers to be constructed.

The Manila Railroad Company. Progress in the northern (unguaranteed) and southern (guaranteed) lines of Luzon continued in the construction work along the approved routes and in surveying and locating new extensions and branches recently authorized.

The Dagupan and San Fernando extension is nearly completed and is in full commercial operation to Aringay.

The branch of the main line from Paniqui to Tayug was extended to Bued and Rosales, and there is but little more construction necessary to complete this line and put it in operation its entire length.

The line south from Manila to Cavité and Naic is complete to Calibuyo, within a very short distance of Naic, and construction is progressing well. The line is open to commercial operations to Cavite and in construction operation as far as built.

The Manila-Batangas line has been completed and is in full commercial operation. The extension from Batangas northwest to Bauan is in progress.

From the main line from Manila to Batangas a branch is being built from Calamba to Santa Cruz, Magdalena, and Pansanjan. This line is complete to Manual, nearly to Magdalena, and a considerable portion of this mileage is in operation. This line should be completed in the near future.

Another branch line from the Batangas road is to extend from Luta to Lucena. This line has been completed to Macampo, near San Pablo. A further extension of this line has been authorized from Lucena southeast to connect with the line in Camarines Sur and Albay, from Nueva Caceres to Lagonoy, Albay, Legaspi, and Tabaco. This connecting link has been surveyed its entire length, and a route recommended, with alternate routes for portions of the distance, but has not yet been definitely located and approved. It will be about 137 miles in length and connect with the line in the southern provinces about seven miles north of Nueva Caceres.

POSTS AND TELEGRAPHS. On June 30, 1911, 572 post offices were in operation, as compared with 556 at the beginning of the fiscal year. Free delivery letter carrier service has been established at 181 additional offices, making a total of 296 offices at which this service is now in operation. Money order service was established at 91 additional post offices during the year, making a total of 209 money order offices. There were on June 30, 1911, 3328.15 kilometers of insular telegraph lines, 25.75 kilometers of telephone lines, and 1842.076 kilometers of cables, and 2968.78 kilometers of provincial telephone lines. There were in the Philippine Islands, including government and private lines, 2974.696 kilometers of cable lines, 3950.55 kilometers of land telegraph lines, with 7787.252 kilometers of wires, 3655.23 kilometers of telephone lines, with 13,618.03 kilometers of wires. At the close of the fiscal year 1911 there were 414 postal savings bank offices in operation, a net increase during the year of 121. There were 28,804 accounts, as compared with 13,102 at the close of the year 1910, an increase of 15,702 accounts. The amount of deposits in the bank on June 30, 1911, was P2,099,474.49, as compared with P1,679,246.35 on June 30, 1910. Of the

28,804 depositors in these banks, 23,174 were Filipinos.

HEALTH. Health conditions in the archipelago during the past year were better than ever before. There have been practically no epidemic diseases, cholera having been confined to one case in Laguna province, 27 in Union province, and one case in Manila. Owing to the largely increased number of inhabitants who have been vaccinated, there have been very few cases of smallpox during the year and nearly all in an extremely mild form. The General Hospital was in successful operation and giving general satisfaction. The Southern Islands Hospital was nearly completed during the year and it is expected to bring to the southern islands the advantages which have so far been confined to those who are able to attend the Philippine General Hospital. The segregation of lepers has been so successfully prosecuted that the number collected each year is much reduced and the efforts of the bureau of health are now largely devoted to making the Culion leper colony more comfortable and beautiful.

In the matter of rinderpest, owing to the very active and cordial coöperation of Major-General Bell, the government has been able to maintain an effective quarantine and has practically succeeded in stamping the disease out of the great province of Pangasinan, after a campaign lasting many months and involving the use of a great many scouts. While progress can be noted in the control of rinderpest, and especially of getting record of cases whenever they appear, a great deal has yet to be done and the government is not in a position to reduce its forces or its expenses or to lessen its activities in this direction.

CONSTABULARY. The strength of the constabulary at the close of the fiscal year 1911 was 303 officers and 4167 men. The director, four of the assistant directors, and three inspectors are detailed from the United States army.

FINANCE. The total revenues for the fiscal year 1911 amounted to \$21,931,572. The expenditures were \$13,688,559. The chief revenues were from customs, from internal revenue, and from miscellaneous sources. The chief expenditures were for the maintenance of bureaus and offices, for aid to provinces, and for public works.

POLITICS AND GOVERNMENT

LEGISLATION. The first regular session of the second Philippine legislature convened on October 17, 1910, and continued in session until and including February 3, 1911. This was the only session of the legislature held during the fiscal year. During this session there originated in the Commission as a Chamber of the Philippine legislature 63 bills, of which 48 were passed by the commission and sent to the assembly. During the same period there were considered by the commission 98 bills which originated in the assembly. The total number of bills finally agreed upon by both houses and enacted into law was 50, of which 17 originated in the Commission and 33 in the Assembly. Of these the following are the more important: An act to provide for an exposition of Philippine products in the city of Manila; an act providing for an appropriation of one million pesos for the construction of schools in the municipalities and barrios of the Philippine Islands; an

act entitled "The Negotiable Instruments Law;" an act authorizing the granting of a franchise to construct, maintain, and operate a street railway in the municipality of Cebu; an act to provide that all elective provincial and municipal offices shall be for four years, to prohibit a second reelection to the same, to change the date of the general elections from the first Tuesday after the first Monday in November to the first Tuesday in June.

The legislature having failed to pass the appropriations for the current expenses of the government for the fiscal year 1912, section 7 of the act of Congress of July 1, 1902, became operative and the expenses necessary for the support of government are being paid in accordance with the provisions of said section. The two houses were unable to come to an agreement in the matter of the election of resident commissioners to the United States for the term beginning March 4, 1911, as then provided by law. This failure, however, was remedied by the act of Congress of February 15, 1911, providing that the present resident commissioners shall hold office until their successors are elected and qualified. Mr. W. H. Phipps of Ohio was appointed auditor on March 4, 1911, appointment to be effective April 1, 1911.

TAAL VOLCANO DISASTER. On the morning of January 30 a violent eruption of Taal volcano, which had been active for a number of days previous, occurred. The volcano is situated about 64 kilometers (40 miles) south of Manila, and the eruption was plainly visible from that city. It was accompanied by a series of earthquake shocks which continued with more or less violence for fifteen days. In all 1014 shocks were registered, of which a very considerable number were of sufficient violence to be felt in Manila. Taal volcano is situated in a lake about 26 kilometers (16 miles) long and 15 kilometers (9 miles) wide, the crater being on an island about 5 kilometers (3 miles) in diameter. The eruption, which occurred at half-past two o'clock in the morning, was accompanied by a violent display of lightning, great blasts of hot gas, which swept the neighboring region, and a fall of mud, which in ravines and low places accumulated to a depth of many feet on the island and points near it. According to the observations at the observatory, ashes even reached Manila. The hot gases and fall of ashes killed all but about 21 of the 300 odd people living on the volcano island. Certain barrios situated on the west coast of the lake were obliterated, and all people and animals perished. Other barrios were only partially destroyed. In some barrios a great many people were injured, some being burned by the hot blasts of air. The total estimated loss of life amounted to about 1300.

In general, peace prevailed throughout the islands in 1911, but an exception was found in the island of Basilan, off the Mindanao Peninsula, where, in a clash between natives and a detachment from the gunboat Pampanga, Ensign Charles E. Hovey was killed and three enlisted men were injured. This island is inhabited by primitive Moros and for several years a naval base has been maintained at Isabela, where small vessels have made their headquarters.

OFFICERS. The personal of the commission on June 30, 1910, was as follows: Hon. W. Cameron Forbes, Governor-General, ex-officio

President; Hon. Newton W. Gilbert, Vice-Governor, Secretary of Public Instruction; Hon. Dean C. Worcester, Secretary of the Interior, member; Hon. José R. de Luzuriaga, member; Hon. Gregorio Araneta, Secretary of Finance and Justice, member; Hon. Rafael Palma, member; Hon. Juan Sumulong, member; Hon. Frank A. Brangan, member; Hon. Charles B. Elliott, Secretary of Commerce and Police, member.

PHILLIPS, DAVID GRAHAM. An American author, assassinated by Fitzhugh Coyle Goldsborough, January 24, 1911. He was born in Madison, Ind., in 1807 and graduated from Princeton University in 1837. His talent for writing showed itself while he was in college and he contributed to the university publications, as well as endeavoring, without success, to sell several of his stories to magazines. Shortly after graduation he took up newspaper work in Cincinnati and after a short time removed to New York, where he became a reporter on the *Sun*. He showed unusual ability as a reporter and writer. After a time he left the *Sun* to become London correspondent to the *New York World* and while he was abroad acted for a time as private secretary to Joseph Pulitzer, proprietor of that newspaper. Returning to the United States he did general work for the *World* and was for some time one of its editorial writers. At this period his first book, *The Great God, Success*, was published (1901) and soon after its publication he gave up newspaper work and went seriously at the business of writing novels and articles for periodicals. He was an indefatigable worker and produced at least one and sometimes two novels every year to the time of his death. His books were usually concerned with some present-day problem. He was a conscientious writer and his novels, although not of the first order, were invariably readable and at times showed glimpses of remarkable talent. His published writings are as follows: *Her Serene Highness* (1902); *A Woman Ventures* (1902); *Golden Fleece* (1903); *The Master Rogue* (1903); *The Cost* (1904); *The Plum Tree* (1905); *The Social Secretary* (1905); *The Deluge* (1905); *The Reign of Gilt* (1905); *The Fortune Hunter* (1906); *The Second Generation* (1907); *Light-Fingered Gentry* (1907); *Old Wives for New* (1908); *The Worth of a Woman* (1908); *The Fashionable Adventures of Joshua Craig* (1909); *The Hungry Heart* (1909); *The Magic* (1910); *The Grain of Dust* (1911). He wrote on political and social matters for the magazines. A series of articles entitled *The Treason of the Senate*, published in 1906, caused much discussion. He was accused of distorting the facts and of making sensational statements which he could not prove. This, however, he denied.

PHILLPOTTS, EDEN. See LITERATURE, ENGLISH AND AMERICAN, Fiction.

PHILOLOGICAL ASSOCIATION AMERICAN. See PHILOLOGY, Classical.

PHILOLOGY, CLASSICAL. A marked characteristic of work in classical philology in the past five years has been the activity of the various classical associations, especially in England and the United States. The primary object of some of these associations, e. g., The American Philological Association, is research; many, however, are chiefly interested in the pedagogical aspects of classical work. One impor-

tant result of this pedagogical activity is the report of the commission on entrance requirements in Latin, which recommended two or three years ago uniform entrance requirements in Latin for American colleges, with special emphasis on the power to read the language at sight. The report has been widely adopted; see J. H. Kirtland, "The Consequents of the Commission's Report," in *The Classical Journal*. Papers presented at various classical conferences at Ann Arbor were published in *Latin and Greek in American Education*.

The movement for uniform grammatical terminology has attracted attention in this country; a commission of fifteen members is considering the subject.

For the progress of American scholarship see in the proceedings of the American Philological Association for 1909 the abstract of an address by Prof. B. L. Gildersleeve on the "Range and Character of the Philological Activity of America," and P. Shorey's article, "American Scholarship," in *The Nation* for May 11 and the *Educational Review* for October.

One other interesting development of the year is the Loeb Classical Library, which is to embrace all Greek authors down to the fall of Constantine (including Critoboulos) and all Latin authors to Charlemagne's age (including Alcuin). Twenty volumes a year are to appear, each containing the Greek or the Latin text, carefully revised, and an English translation, usually in prose; the volumes will contain from 320 to 608 pages, of about 250 words (of English) per page. Two English scholars are to serve as editors-in-chief, assisted by an advisory board of English, German, French, and American scholars. The library is made possible by the generosity of Mr. James Loeb, whose objects are to produce a comprehensive and uniform series of classical texts with fine translations in handy form and of moderate price, to give those who have not studied Latin and Greek an opportunity to become familiar with the beauty and learning, the philosophy and wit of the classical writers, and "to revive interest in classical literature in an age when the Humanities are being neglected more, perhaps, than at any time since the Middle Ages, and when men's minds are turning more than ever before to the practical and the material." It is probable, however, that the library will be most serviceable to persons who once enjoyed training in Greek and Latin, and who yet retain some knowledge of those languages, though not enough to enable them, unassisted, to read widely in the original.

The chief repositories of classical work in the United States, *The American Journal of Philology* and *Classical Philology*, contained in 1911 many articles of importance. In the former note "Vahlen's Ennius," C. Knapp, an exhaustive examination of part of the Prolegomena to Vahlen's great edition of the fragments of Ennius (first published in 1854, revised in 1903); Vahlen's views on the life and writings of Ennius, and of the extent to which Ennius was studied and known by other Roman authors, were summarized, criticized, corrected, and supplemented; "Masks on the Roman Stage," Catherine Saunders, a useful summary of the available evidence on the subject, and criticism of the views based on that evidence; "Horatian Urbanity in Hesiod's Works and Days," E. K. Rand; the author abides by our text of the poem, accepts the poem as a unit, and finds that Hesiod had a calm

and lofty mind, and the placidity of a Horatian satirist; "The House-Door in Greek and Roman Religion and Folk-Lore," M. B. Ogle (the writer believes that the cult concerned with the door—such practices as binding the doorposts with wool, fastening laurel, etc., on or near the door—was originally connected with the worship of the spirits of the dead); "Lucilius on EI and I," R. G. Kent, an acute discussion of difficult passages in Lucilius; "The Conventions of Pastoral Elegy," G. Norlin, dealing with conventions borrowed by modern pastoral poetry from ancient times; "Repeated Verses in Homer," J. A. Scott, an argument that repeated verses furnish no indication of the relative antiquity of the Iliad and the Odyssey (Professor Scott is publishing much important work on Homer, in the two journals under discussion here, *The Classical Weekly*, etc.; see also the last YEAR BOOK. He holds that the Iliad and the Odyssey belong to the same era of linguistic development and are surely the product of the same age); "The Parodoi in the Greek Theater," K. Rees; the writer holds, that for the classical drama of Greece no convention obtained concerning the side-entrances to the Greek theatre, but that in the New Comedy of Athens and in Roman Comedy there was such a conventional significance (a useful discussion, which, however, disregards certain important material relating to the Roman theatre); "The Date of Aristophanes's Georgoi," E. Capps (the date given is, 424 B. C.) Professor Gildersleeve's notes under "Brief Mention" are as valuable as ever.

From *Classical Philology* we may name "Administration of Justice in the Age of Homer," R. J. Bonner; "The Identity of the Child in Virgil's Pollio" (Eclogue 4); the author holds that the Romans freely discussed prenatal matters and predicted the sex of an expected child, commonly counting on the birth of a boy: in Vergil's case the prediction concerning the sex of Octavian's expected child proved wrong, to the confusion of generations of interpreters of the poem; "Saturn—the Genesis of a Literary Form," G. L. Hendrickson, an attempt to support former papers in which the author attacked the Roman tradition that there were at Rome forms of the drama prior to the time of Greek influence on the Romans in literature: he holds that the term *Satura* as a designation of a form of literature was neither known nor needed before 40-30 B. C., since satire had not yet claimed a place as an independent form of literature needing a name (one asks what bearing this has on the question of the existence of a *dramatic satura*). The paper has importance not so much in itself as in the fact that it is part of a movement to deny the existence of forms of early Roman drama, a denial which has direct bearing on the capacity of the Romans for independent mental effort of any kind, and on the whole development of early Latin literature. For the other side of this general discussion see a paper in abstract, "The Dramatic *Satura* among the Romans," in the proceedings of the American Philological Association, for 1909, published late in 1910; "Two Linguistic Tests of the Relative Antiquity of the Iliad and the Odyssey," J. A. Scott; "The De Compositione of Dionysius of Halicarnassus considered with reference to the Rhetoric of Aristotle," H. P. Breitenbach; "Studies in Greek Noun-Forma-

tion," E. H. Sturtevant; "Kelts and Ligurians," R. W. Husband: the author, having urged in a previous paper that the greater part of what is called Ligurian is strictly Gallic, seeks now to determine the times of Gallic migration into Liguria, and the routes taken by the Ligurian-Gallic tribes; "The Origin of the Realistic Romance among the Romans," F. F. Abbott; the author makes it the invention of Petronius; "The Manuscripts of Propertius," B. L. Ullman; "Concerning the Oratory of Brutus," E. J. Philby, an argument that in the *Brutus* Cicero misrepresents Brutus's views on oratory and his oratorical style. Much good work, as usual, appeared in reviews in both *The American Journal of Philology* and *Classical Philology*.

Two volumes of the *Transactions and Proceedings* of the American Philological Association, 40 and 41, published late in 1910 and 1911, contained articles of importance: "On Certain Euphonic Embellishments of Propertius" (rime, repeated vowel, alliteration, onomatopoeia, etc.), B. O. Foster; "Lucilius and Persius," G. C. Fiske, urging that for Persius Lucilius was a source second in importance to Horace alone; "On the Eclogues of Baptista Mantuanus" (a writer of the fifteenth century, who knew and imitated Vergil), W. P. Mustard: this paper the author reinforced by an edition of the Eclogues, with notes, etc. (American scholars are much given to tracing the influence of the classics on modern literature, especially English: witness, e. g., Mr. Norlin's paper, named above, and the revised edition of C. A. Gayley's *Classical Myths in English Literature and Art*); "Structural Variety in Greek Tragedy," T. D. Goodell; "The Necessity of Ritual Purification After Justifiable Homicide," J. H. Hewitt; "Notes on Etiam in Plautus," C. Knapp; "The Treatment of Dactylic Words in the Rhythmic Prose of Cicero," F. W. Shipley (this matter of rhythmic prose is attracting much sympathetic attention in America: for a sobering warning on the other side see P. Shorey's review of Zander, "Eurythmia, vel Compositio Rythmica Prose Antiquæ," in *Classical Philology* 6, 494-497; "Dionysiac Magic and the Greek Land of Co-caigne," C. Bonner.

Of much value in the field of bibliography is R. Klussmann's *Bibliotheca Scriptorum Classicorum et Græcorum et Latinorum*, part 2 of volume 1, giving a conspectus of books and articles, published between 1878 and 1896, on Greek authors (Hybrias to Zosimus: part 1 appeared in 1909). Note also *Altclassische Philologie und Altertumskunde, Antiquariats Katalog* 579, by H. Kerler, Ulm, Germany, not previously mentioned in the YEAR BOOK. In *Imagines Philologorum* A. Gudeman published portraits of 160 classical scholars, all foreign.

In the field of inscriptions we may notice the *Bulletin annuel d'épigraphie grecque*, by A. J. Reinach, covering 1908-1909; *L'Année épigraphique romaine*, for 1910, by R. Cagnat and M. Besnier; Volume 4, Fascicule 3 of *Inscriptiones Græcæ ad res Romanas pertinentes*, by R. Cagnat and G. Lafaye. In *The American Journal of Philology* we have an article, the sixth in a series, by H. L. Wilson, on "Latin Inscriptions at Johns Hopkins University"; in *The American Journal of Archaeology* D. M. Robinson described a Panathenaic vase containing an archon's name earlier than any archon's name borne by such vases heretofore published.

The Catalogue of Greek Papyri in the John

Rylands Library, Manchester, England, and volume 8 of the *Oxyrhynchus Papyri* deserve special notice. The former contains theological papyri (among them is the oldest extant version of the Nicene Creed), and some new classical texts, e. g., a fragment of an epic giving a story of Linus, a part of Apion's Homeric Glosses, and parts of Homer, Hesiod, Bacchylides, Herodotus, Demosthenes, Polybius, and Isocrates. One part of the Homeric fragments comes from a vellum book which dates from the third or fourth century, and so is one of the oldest vellum books known. In the *Oxyrhynchus Papyri* are fragments of *melambi*, by a certain Cercidas, cynic and poet both, of the third century B. C. Both volumes make some additions to our small store of Latin papyri, giving parts of Cicero and Vergil. An important find recently announced is that of about 40 lines of a Satyric play by Sophocles, the *chneuta*, the Trackers or Trailers.

An important work on coins is *Die antiken Münzen Nord-Griechenlands*, published by the Royal Academy of Sciences at Berlin; Part II. of the first half and Part I. of the second half of Volume I., dealing with the coins of Dacia, Mæsia, Odessos, and Tomi, have appeared. B. L. Head's *Historia Numorum*, a manual of Greek numismatics, has been revised and enlarged.

In religion and mythology note *The Religious Experience of the Roman People*, W. W. Fowler, a large and valuable work: the author seeks to get behind cult and custom to the ideas and feelings which prompted them; *The Religious Life of the Roman People*, J. B. Carter; *Culti e miti nella Storia dell' Antica Sicilia*, which involves also a careful study of survivals in certain contemporary Sicilian festivals of the saints of ancient rituals and beliefs; the author, in opposition to Freeman and Holm, minimizes the Phœnician element in ancient Sicilian religion. Interesting articles are "Roman Prayer and Its Relation to Ethics," G. J. Laing, in *Classical Philology*: the author holds that, though originally there was among the Romans no connection between moral ideas and the gods in general and though in some cults that connection was never developed, yet in some cults a tendency to connect the two appears early, though it never became very strong; "The Omen of Sneezing," A. S. Pease, in *Classical Philology*; and the papers by Professors Ogle and Hewitt, named above in the account of classical work published in *The American Journal of Philology* and *Classical Philology*. *Opferbräuche der Griechen* is a collection of 28 papers published by P. Stengel at various times in the past 28 years, all now revised. In *Neue Jahrbücher für das klassische Altertum* is an article by L. Deubner, "Zur Entwicklungsgeschichte der altrömischen Religion," a study of survivals in Roman cults from a time when man felt able to interfere in the workings of nature without help from gods or spirits. Franz Cumont's *Les religions orientales dans le paganisme romain* (1906, 1909) has now been translated into English, under the title *The Oriental Religions in Roman Paganism*.

In philosophy we have E. V. Arnold's *Roman Stoicism*, which lays special stress on the development of stoicism in the Roman empire; *Varia Socratica: First Series*, by A. E. Taylor, studies preliminary to a work on Plato's philosophy, in which the author seeks to show that much more of Platonism than is commonly sup-

posed goes back to Socrates or even to the Pythagoreans and other pre-Socratics: for a review of the book, not altogether favorable, see P. Shorey in *Classical Philology*; "Antecedents of the Greek Corpuscular Theories," W. A. Heidel, in *Harvard Studies* 22.

The very valuable Latin lexicons undertaken by American scholars, the *Thesaurus Linguae Latinae Epigraphicae*, by G. N. Olcott, and the *Lexicon Plautinum*, G. Lodge, both made progress, the former into *ara*, the latter into *facio* (of the one 408, of the other 576 pages, have now appeared). Progress was made, too, with the *Thesaurus Linguae Latinae*, the most exhaustive dictionary of the Latin language ever attempted (yet to be supplemented in many ways by the works of Professors Lodge and Olcott). Of great usefulness and of distinct credit to American scholarship is M. N. Wetmore's *Index Verborum Vergilianus* (554 pages); its value may be most readily learned from the review of it by E. K. Rand in *Classical Philology*. An *English-Greek Dictionary* of 1038 pages was published by S. C. Wodenhouse in 1910.

In syntax we have space to notice only three elaborate reviews of Bennett, *Syntax of Early Latin: The Verb*, by W. G. Hale, C. Knapp, and A. L. Wheeler, in *Classical Philology*, *The American Journal of Philology*, and *The Classical Weekly*. A new *Latin Grammar*, meant especially for schools, by H. E. Burton, appeared. Note also *Syntax of Classical Greek from Homer to Demosthenes, Second Part*, by B. L. Gildersleeve, with the coöperation of C. W. E. Miller, in which Professor Miller presents the most accurate and complete treatment of the article in Greek thus far published.

Schanz's *Geschichte der römischen Litteratur*, Part 2, First Half, in Müller's *Handbuch*, covering the Augustan Period, reached its third edition. A new addition to Müller's *Handbuch* is M. Manitius's *Geschichte der lateinischen Mittelalters*, Part I. Another part of W. Christ's *Geschichte der griechischen Litteratur*, as revised by W. Schmid, appeared. Note also H. Jordan, *Geschichte der altchristlichen Litteratur*; J. W. Mackail's *Lectures on Poetry*, which contains chapters on "Virgil and Virgilianism," and "The Æneid"; Murray's *The Rise of the Greek Epic* (second edition); "The Oresteia of Æschylus as illustrated by Greek Vase Painting," Hetty Goldman, in *Harvard Studies* 21; "The Influence of Local Theatrical Conditions upon the Drama of the Greeks," R. C. Flickinger, in *The Classical Journal*; "Homeric Armor and Mr. Lang," G. M. Bolling, in *The Catholic Bulletin* for 1910; "Homeric," J. Van Leeuwen, in *Mnemosyne*, emphasizing the collapse of objective and subjective arguments against the unity of the Iliad and the Odyssey.

In the fields of classical history and Greek and Roman life, which may conveniently be grouped together, note the following books: *A History of the Ancient World*, G. W. Botsford; *Thucydides and the History of his Age*, G. B. Grundy, a very elaborate volume in which the author, well known for his personal examination, through visits to the districts involved, of the accounts of famous Greek battles, maintains that the Peloponnesian War was due mainly to sparring by the various Greek states for economic advantages; *Hellenistic Athens*, W. S. Ferguson, a connected history of Athens from the death of Alexander the Great to the sack of Rome by Sulla; *The International Law and*

Custom of Ancient Greece and Rome, C. Phillipson; *Essays on Roman History*, by H. Pelham, a posthumous collection, edited by F. Haverfield, of many scattered pieces, previously published, with three new papers; nearly all deal with questions of imperial policy, including the frontier system; *Annals of Caesar*, E. G. Sihler, a critical biography, with a survey of the sources; *Cæsar's Conquest of Gaul*, T. Rice Holmes, second edition, revised throughout and largely rewritten; *The Cambridge Mediæval History*, Volume 1, a collection of papers from various hands treating the Christian Roman empire and the foundation of the Teutonic kingdoms (754 pages, with 14 maps). The third and final volume of Gercke and Norden's *Einleitung in die Altertumswissenschaft* is a fresh treatment of "Griechische und römische Geschichte," and "Griechische und römische Staatsaltertümer," by competent German scholars. Note, finally, *Lo Stato e l'istruzione pubblica nell'impero romano*, C. Barbagallo, in which the author discusses various acts of the emperors from Augustus to Justinian, relating to education; he holds that public instruction in Europe is wholly of Italian origin; *Die römischen Privataltertümer*, H. Blümner, in Müller's *Handbuch*. V. Hehn's well-known work, *Kulturpflanzen und Haustiere*, appeared in a new edition, the eighth, by O. Schrader, with botanical appendix, by A. Engler and F. Pax.

PHILOLOGY, MODERN. INTRODUCTION. The general progress of modern philology since 1907 has been one of quiet development and summarization of data already available. No new principles of deep effect on the underlying basis of the science have been discovered; indeed, the last work in any department of Indo-Germanic linguistic science that can be truthfully characterized as marking a new epoch in philology was Hermann Hirt's *Indogermanischer Ablaut* published as far back as 1900. Even the establishment of new periodicals has almost ceased, although mention may be made of *Wörter und Sachen*, published at Heidelberg since 1909, and of the *Münchener Museum für Philologie des Mittelalters und der Renaissance*, founded in 1911. The most noteworthy project for the summarizing of knowledge of the whole domain of Indo-Germanic philology, both ancient and modern, is that planned by the firm of Karl Winter in Heidelberg. This is to include a series of "Indo-Germanic handbooks," of which, within the scope of modern philology, R. Thurneysen's *Altirisches Handbuch* has already appeared (1909) and the *Slavisches etymologisches Wörterbuch* of E. Berner has reached the eighth fascicle, extending to *kuk-uruz*; a series of Germanic text-books, thus far including grammars of Pre-Germanic, Gothic, Old and Middle High German, Icelandic, Anglo-Saxon, and Old Frisian; a series of Romance, including W. Meyer-Lübke's *Einführung in das Studium der romanischen Sprachwissenschaft* (1900) and *Romanisches etymologisches Wörterbuch* (this carried as far as *farf* in 1911), B. Wiese's *Altitalienisches Elementarbuch* (1904), and S. Puscariu's *Etymologisches Wörterbuch der romanischen Sprache* (1900); and a series of Slavic, including A. Leskien's *Grammatik der altbulgarischen (altkirchenslavischen) Sprache* (1909), and O. Brooh's *Slavische Phonetik* (1911).

PROGRESS IN 1911: IN GENERAL. A consider-

able part of the contributions to modern philology in 1911 was in the shape of dissertations for the doctorate in philosophy. This type of work has the advantage of being confined to a very specific field, thus encouraging close attention to details. On the other hand, much of the work is immature, particularly in the case of the Germans, French candidates for the doctorate usually being men already approaching middle life. In the majority of cases the titles of the works indicate their character, so that a bibliographical synopsis will be sufficient; and for the sake of completeness those books will be included which, although published in 1910, were recorded too late to be noted in the YEAR BOOK of that date.

GERMANICS. In the Germanic field the works of most general interest are the opening sections of the *Reallexikon der germanischen Altertumskunde*, edited by J. Hoops (Strassburg, 1911) and of the third edition of H. Paul's great *Grundriss der germanischen Philologie* (Strassburg, 1911). The subject of personal names receives discussion in G. Werle's *Die ältesten germanischen Personennamen* (Strassburg, 1910) and M. Schönfeld's *Wörterbuch der altgermanischen Personen- und Völkernamen* (Heidelberg, 1911), while another interesting department of lexicography is considered in K. Guntermann's *Herrschaftliche und genossenschaftliche Termini (für Gott, Christus, den Teufel und ihre Umgebung) in der geistlichen Epik der Westgermanen* (Kiel, 1910). More general problems of Germanic grammar are treated by A. von Söbbe in his *Ausgleichung des Rückumlauts* (Heidelberg, 1911) and by O. Gröger in his *Althochdeutsche und altsächsische Kompositionsfuge mit Verzeichnis der althochdeutschen und altsächsischen Komposita* (Zurich, 1911).

OLD AND MIDDLE HIGH GERMAN. The domains of Old and Middle High German have received their share of attention. W. Braune published at Halle in 1911 the fourth edition of his *Althochdeutsche Grammatik* and the seventh of his *Althochdeutsches Lesebuch*, while L. Armitage issued at Oxford an *Introduction to the Study of Old High German* and R. Vian edited at Halle in 1910 two interesting manuscripts of the fourteenth and fifteenth centuries under the title of *Mondwahragebuch*. E. Witzig's *Zum Gebrauch des Artikels im Althochdeutschen* (Bonn, 1910) deserves mention, and grammatical aspects of the famous Old High German authors Otfrid and Notker were discussed in P. Igel's *Das gi-Präfix als Perfektivierungsmittel in Otfrids Evangelienbuch* (Heidelberg, 1911), I. Weinberg's *Zu Notkers Anlautgesetz* (Tübingen, 1911), and E. Weismann's *Form und Verbreitung des Compositions-vokals in Nominalcompositis bei Notker* (Erlangen, 1911). In Middle High German W. Hertz edited the *Parzival* of Wolfram von Eschenbach (Stuttgart, 1911), and the same author is studied by S. A. Bacon in his *Source of Wolfram's Willenhalm* (Tübingen, 1910) and by J. L. Boysen in his *Ueber den Gebrauch des Genitivs in den Epen Wolframs von Eschenbach* (Würzburg, 1910). Among other editions of Middle High German texts should be mentioned E. Eichler's *Die mittelhochdeutsche Apokalypse in den münchener Handschriften Cgm. 292 und Cgm. 111* (Greifswald, 1910) and K. Burchardt's *Das mittelhochdeutsche Gedicht von der "Frauentreue"* (Berlin, 1911). New

light is cast upon the cycle of the legend of Apollonius, prince of Tyre, by A. Bockhoff and S. Singer's *Heinrichs von Neustadt Apollonius von Tyrland und seine Quellen* (Tübingen, 1911), and upon Rudolph of Ems by V. Lüdicke's *Zur Quellenfrage von Rudolfs Willenhalm von Orleans* (Halle, 1910). The poetry of the period receives attention in A. Angermann's *Der Wechsel in der mittelhochdeutschen Lyrik* (Marburg, 1910). E. Gärtner's *Die Epitheta bei Walther von der Vogelweide* (Kiel, 1911), and J. Bruch's *Zur Sprache der Rede vom Glauben des armen Hartmann* (Prague, 1910), nor should B. Wiesotzky's *Untersuchungen über das mittelhochdeutsche "Buch der Rügen"* (Strassburg, 1911) be overlooked. More strictly linguistic studies in this sphere are A. Weller's *Die Sprache in den ältesten deutschen Urkunden des deutschen Ordens* (Königsberg, 1911), Wagner's programme *Die Kanzleisprache Reutlingens von 1300-1600* (Stuttgart, 1910), E. Wellander's *Bedeutungsentwicklung der Partikel ab in der mittelhochdeutschen Verbal-komposition* (Upsala, 1911), and H. Herchenbach's *Das Präsens historicum im Mittelhochdeutschen* (Berlin, 1911).

GERMAN DIALECT STUDIES. Turning to the modern period of the German language, we find that investigation has been chiefly devoted, except for the fifth edition of O. Behagel's *Deutsche Sprache* (Leipzig, 1911), to dialect study. The great *Siebenbürgisch-sächsisches Wörterbuch* and the *Schwäbisches Wörterbuch* continued to make progress, the former having reached the first fascicle of the second volume and the latter its thirty-third fascicle. Other considerations of special dialects are O. Schachtschabel's *Mundart von Kranichfeld in Thüringen* (Strassburg, 1910), O. Kürsten and O. Bremer's *Lautlehre der Mundart von Buttstedt bei Weimar* (Leipzig, 1910), F. Enderlin's *Mundart von Kessvil in Oberthurgau* (Frauenfeld, 1911), and E. Abegg's *Mundart von Urseren* (Frauenfeld, 1911). More general in scope is E. Hommer's *Studien zur Dialektgeographie des Westerrhodes* (Marburg, 1910), and a phase of German argot is treated by the veteran F. Kluge in his *Seemannssprache* (Halle, 1911).

LOW GERMAN. Passing to the Low German region, we may note first R. M. Garrett's translation of U. Lindelöf's *Elements of the History of the English Language* (Seattle, 1911). In Anglo-Saxon G. Oess has edited the *Arundel Psalter* (Heidelberg, 1910) and to K. Wildhagen is due the *editio princeps* of the *Cambridge Psalter*, contained in manuscript (Ff. 1. 23 of the library of the University of Cambridge) (Hamburg, 1910), while mention must also be made of A. S. Cook's *Concordance to Beowulf* (Halle, 1911). Interest in Anglo-Saxon lexicography is evinced by C. Braach's *Namen der Werkzeuge im Altenglischen* (Kiel, 1910), T. Kross's *Namen der Gefässe bei den Angelsachsen* (Kiel, 1911), and C. Leydecker's *Angelsächsisches in althochdeutschen Glossen* (Bonn, 1910). Among more technical studies may be noted R. Mettig's *Die französischen Elemente im Alt- und Mittenglischen (800-1258)* (Marburg, 1910), A. Braun's *Lautlehre der angelsächsischen Version der Epistola Alexandri ad Aristotelem* (Heidelberg, 1911), H. C. A. Carpenter's *Deklination in der nordhumbrischen Evangelien-Übersetzung der Lindis-*

jarner Handschrift (Bonn, 1910), H. Weyhe's *Zu den altenglischen Verbalabstrakten auf nes und-ing-ung* (Halle, 1911), and J. M. Burham's *Concessive Constructions in Old English Prose* (New York, 1911). In Middle English J. F. Royster edited *A Middle English Treatise on the Ten Commandments* (Chapel Hill, 1911), and in Icelandic G. T. Flom edited *Konungs Skuggja, Fragment RA 56 O* (Urbana, 1911). Apart from this latter work little has been done in the Norse group, though A. Musinowicz published *Die Stellung des attributiven Adjektive im Altisländischen und Altnorwegischen* (Riga, 1911), H. Falk and A. Torp issued a revised version of their *Norwegisch-dänisches etymologisches Wörterbuch* (Heidelberg, 1911), and A. Kock's *Svensk-Ljudhistoria* reached the second fascicle of the second volume (Lund, 1911).

ROMANCE. Turning from Germanic to Romance, two works concern the field in general, the first volume of W. Meyer-Lübke's *Prinzipienfragen der romanischen Sprachwissenschaft* (Halle, 1910) and the *Romance Studies in Honor of A. Marshall Elliott* (Baltimore, 1911). In 1911 the *Dictionnaire étymologique de la langue française* of J. Sanneg, published at Hanover, reached its third fascicle, and general historical phases of the French language were discussed in L. de Anna's *Verbo francese e la sua teoria dal xii al xix secolo* (of which the third volume appeared at Rome in 1911) and E. Hartmann's *Syntaktische Studien über die Temporalsätze im Französischen* (Marburg, 1911).

OLD FRENCH. The interest manifested in Old French during the period under consideration was very great. Special importance attaches to the numerous editions of Old French texts. Here belongs the second part of the fourth volume of H. O. Sommer's *Vulgate Version of the Arthurian Romances*, dealing with *Le livre de Lancelot del lac* (Washington, 1911), with which is connected G. Bräuner's edition of *La reine as granz dolors*, the first "branch" of his *Altfranzösischer Roman von Lancelot del lac* (Marburg, 1911), while another member of the Arthurian cycle is treated in R. T. Hill's *La mule sanz fraïn: An Arthurian Romance by Paiens de Maisieres* (Baltimore, 1911). Chrestien de Troyes is also represented by more than one title, his epic on William the Conqueror having been edited by both W. Forster (*Kristian von Troyes Wilhelm von England* (*Guillaume d'Angleterre*), (Halle, 1911) and H. Suchier (*La chanson de Guillaume: französisches Volksepos des xi. Jahrhunderts*, Halle, 1911), and the relation of the same poet's work to the kindred Celtic cycle is discussed by R. Edeus in his *Erec-Geraint: der christliche Versroman und das wälische Mabinogi* (Rostock, 1910). Other editions of Old French texts are A. Stimming's *editio princeps* of the first recension of the Romance version of the cycle of Bevis of Hampton (*Der festländische Beuve de Hantun*, Halle, 1911), E. Farel's *Courtois d'Arras, jeu de siècle* (Paris, 1911), C. Oulemont's *Les débats du clerc et du chevalier dans la littérature poétique du moyen-âge* (Paris, 1911), O. Schultz-Gora's *Zwei altfranzösische Dichtungen, La Chastelaine de Saint-Gill, Du Chevalier au barisel* (Halle, 1911), E. Höpfner's *editio princeps* of *La Prise amoureuse von Jehan Acart de Hesdin, allegorische Dichtung aus dem vierzehnten*

Jahrhundert (Halle, 1910), W. Suchier's *L'enfant sage: Das Gespräch des Kaisers Hadrian mit dem klugen Kind Epitus* (Halle, 1911), and P. Champion's *La vie de Charles d'Orléans (1394-1465)* (Paris, 1911). The French accounts of Edward the Confessor have been studied by R. Fritz in his *Ueber Verfasser und Quellen der altfranzösischen Estoire de Saint Aeduard le rei* (Heidelberg, 1910), and other dissertations on Old French poetry are R. Halpersohn's *Ueber die Einleitungen in altfranzösischen Kunstepos* (Berlin, 1911), and P. Erfurth's *Die Schlachtschilderungen in den älteren Chansons de Geste* (Halle, 1911). Linguistic studies of special texts are the first part (rhyme and phonology) of F. Mainone's *Laut- und Formenlehre in der Berliner franko-venezianischen Chanson de Geste von Huon von Auvergne* (Greifswald, 1911) and C. Neumann's *Formenbau des Nomens und Verbums in den Dramen Adams de la Hale: "Li gicus de Robin et de Marion" und "Li Jus Adan"* (Kiel, 1910), as well as A. Wittmann's *Flexion in den altfranzösischen Miracles de Notre Dame* (Heidelberg, 1911). Old French morphology finds consideration in F. Schönenberger's *Beiträge zur Geschichte der altfranzösischen Nomina mit wechselndem Accent und wechselnder Silbenzahl in dem Zeitraum von 1200 bis 1500* (Heidelberg, 1910), E. Dietz's *Zur Geschichte der französischen si- und i-Perfecta nach Tezlen des vierzehnten und fünfzehnten Jahrhunderts* (Heidelberg, 1911), the first part (dealing with the article) of J. Storm's *Större fransk syntax* (Christiania, 1911), O. Richters's *Zur historischen Syntax von interrogativem quel* (Göttingen, 1910), P. Schächtelin's *Passé Défini und Imparfait im Altfranzösischen* (Halle, 1911), E. W. Knickerbocker's *Ellipsis in Old French* (New York, 1911), D. Rubin's *Beiträge zur Geschichte der Anrede im Altfranzösischen gegen Ausgang des Mittelalters (ca. 1350-1500)* (Heidelberg, 1911), and C. Oulemont's *Étude sur la langue de Pierre Gringoire* (Paris, 1911), the latter work marking the transition to the modern period of the French language.

FRENCH DIALECTS. Much interest has also been shown in French dialects. To the older *mannischen Schweizerromanen* (Halle, 1910), S. Mondon's edition and translation of the twelfth-century Gascon *La grande charte de Saint-Gaudens (Haute-Garonne)* (Paris, 1910), and G. Millardet's Gascon studies, *Recueil de muns de la Grand' Combe (Doubs)* (Paris, 1910), *Études de dialectologie landaise* (Toulouse, 1910), and *Petit atlas linguistique d'une région des Landes* (Toulouse, 1910). Turning to the modern dialects, we note C. Beszard's *Étude sur l'origine des noms de lieux habités du Maine* (Paris, 1911), the fourth volume of A. Leduc's *Ede quoi rire à se teindre, quatrième chant de contes picards (patois de Santerre)* (Paris, 1911), F. Boillot's *Patois de la commune de la Grand' Combe (Doubs)* (Paris, 1910), H. A. Vieux's *Vocalisme du patois de Colombert (Boulonnais)* (Paris, 1911), and *Le parler populaire (patois) de Roubaix* (Paris, 1911, this volume being devoted entirely to the phonology of the dialect), A. Revanet's *Dictionnaire du patois des environs de Grenoble* (Grenoble, 1911), F. Frankhauser's *Das Patois von Val d'Illice (Unterwallis)* (Hamburg, 1911), and L. Odin's *Glossaire du patois de Blonay* (Lausanne, 1910).

OTHER ROMANCE STUDIES. A gratifying amount of work, although naturally smaller in volume, has been done on the other members of the Romance group. Some account of Provençal studies in Italy is given by S. Debenedetti in his *Gli studi provenzali in Italia nel cinquecento* (Turin, 1911). As in Old French, much has been done in editing texts. Here belong M. L. Dejeanne's edition and translation of *Les poésies complètes du troubadour Marcabru* (Paris, 1910), S. Stronski's edition and translation of *Le troubadour Folquet de Marseille* (Cracow, 1910), G. Berton's edition of *Il canzoniere provenzale di Bernart Amoros* (Freiburg, Switzerland, 1911), and E. Bondurand's editio princeps of a little poem of local interest, *Description des bains de Saint-Laurent, faite en 1687* (Saint-Laurent-des-Bains, 1911). Raimon Feraut's Provençal "Life of St. Honoratus" has been made the subject of two dissertations, W. Schäfer's *Das Verhältnis von Raimon Ferauts Gedicht La Vida de Sant Honorat zu der Vita Sancti Honorati* (Halle, 1911) and A. Krettek's *Die Ortsnamen der Vida de Sant Honorat von Raimon Feraut und ihrer lateinischen Quelle* (Halle, 1911). In Italian two contributions to our knowledge of the dialects deserve mention, G. Bistoli's *La poesia dialettale piemontese* (Turin, 1911), and T. Zanardelli's *Saggi folklorici in dialetto di Baai (Appennino bolognese)* (Bologna, 1911). Spanish is more fully represented than Italian. Special mention should be made of E. Cotarelo y Mori's edition of Spanish dramas under the title *Colección de entremeses, loas, bailes, jácara y mojigangas desde fines del siglo xvi á mediados del xviii* (Madrid, 1911). Linguistic studies of Spanish are given in S. Padilla's *Gramática histórico-crítica de la lengua española* (Madrid, 1911) and M. A. Colton's *Phonétique castillane* (Paris, 1911), and the very interesting subject of Judæo-Spanish is responsible for R. Gil's *Romancero judeo-español* (Madrid, 1911). Within the sphere of American Spanish the great *Diccionario de chilenismos y otras voces y locuciones viciosas*, of M. A. Roman published at Santiago de Chile, reached in 1911 the end of the letter F, another valuable contribution being C. Bayo's *Vocabulario criollo-español sud-americano* (Madrid, 1910). Internal conditions in Portugal have scarcely been conducive to language study, yet J. Leite de Vasconcellos has been able to publish his *Licções de philologia portuguesa dadas na Bibliotheca Nacional de Lisboa* (Lisbon, 1911). To the more outlying branches of the Romance group are devoted, for Rhaeto-Romanic, T. Gärtner's *Handbuch der rhaetoromanischen Sprache und Literatur* (Halle, 1910), and for Rumanian G. Pascu's *Etimologii romînesti* (Jassy, 1910).

CELTIC. Celtic studies have flourished less well, owing to the death of two of their leading representatives, Stokes and Strachan. Nevertheless A. Holder continues his monumental *Altceltischer Sprachschatz* at Leipzig, reaching the twentieth fascicle in 1911, while K. Meyer has published *Selections from Ancient Irish Poetry, with Translations* (London, 1911), and a second, posthumous, edition of A. MacBain's *Etymological Dictionary of the Gaelic Language* was issued (Stirling, 1911). In the Slavic group almost the only publication of interest, apart from those already noted, was A. J. Sobolewsky's Russian treatise on the phonology

of Old Church Slavic (Kiev, 1910), and for another family of Indo-Germanic, Albanian, A. Busetti's *Vocabulario italiano-albanese* (2 vols., Scutari, 1911) is to be recorded.

PHILOSOPHY. IDEALISM. Since the revival of the study of Kantianism fifty years ago and the reaction against materialism, philosophy has shown a marked tendency towards an idealistic epistemology and a gradually increasing predilection for a spiritualistic metaphysic. Some thinkers accepted Kant's *Critique of Pure Reason* and busied themselves with the criticism of the principles of knowledge, regarding metaphysics as an expression of man's constructive impulse of little scientific value. Others, following the example of Kant's successors, Fichte, Schelling, and Hegel, also turned their attention to system-building; but common to nearly all the leaders of latter-day philosophy is their relationship with the great German criticist and the schools which grew out of his teachings. We have only to recall the names of prominent philosophers and scientists of our generation in the different countries to understand the preponderance of this influence in recent modern thought: Royce, Ladd, Ormond, Howison, Watson, in America; Green, the Cairds, Bradley, Hodgson, J. Ward, Bosanquet, Huxley, Pearson, Clifford, Maxwell, in England; Hartmann, Wundt, Paulsen, Dilthey, Rickert, Windelband, Eucken, Münsterberg, Cohen, Natorp, Riehl, Schuppe, Rehmknecht, Mach, Ostwald, Hertz, in Germany; Renouvier, Pilon, Fouillée, Secretan, Boutroux, Poincaré, in France; and Mamiani, Barzellotti, Croce, Chiappelli, and Tocco, in Italy.

OPPOSING SCHOOLS. There have always existed alongside of the dominant dynasty, and even within its own household, groups of thinkers who opposed the doctrines of an older idealism in whole or in part—its monism, its rationalism, its intellectualism, its absolutism, or its pantheism—and emphasized factors which the traditional schools neglected or refused to accept. Herbart taught pluralism and realism, and insisted on making philosophy scientific; Schopenhauer introduced voluntarism and pessimism; Lotze sought to reconcile idealism and realism, teleology, and mechanism, pantheism and pluralism; Schleiermacher supported the claims of feeling and faith; the followers of Comte and Mill advocated empiricism and positivism, Spencer evolutionism, Nietzsche individualism and instrumentalism. Nearly all of these men have exercised a beneficial influence, and many of their tenets have been incorporated in idealism. Within recent years, however, the opposition has grown in strength under the leadership of philosophers possessing literary gifts and personal charm who have been able to appeal to wider circles of educated persons, especially in the United States, England, and France—Germany being less affected by the revolution than any other country. Pragmatism, instrumentalism, humanism, positivism, radical or immediate empiricism, psychology, natural realism, pluralism, voluntarism, irrationalism, intuitionism, mysticism, and evolutionism are some of the labels which have come into use, and the philosophical world to-day is in a state of fermentation. Most prominent in the movement are James, Dewey, Woodbridge, Schiller, B. Russell, G. E. Moore, and Bergson. The interest is intense, the discussion warm, but good-tempered and straightforward. We seem to be passing through a

philosophical renaissance which is characterized by dissatisfaction with the traditional conceptions and a desire to blaze new trails, but is not agreed as to the direction to take. Some of the reformers are seeking to introduce the methods of natural science into philosophy, or to leave to science the construction of our conception of reality; others consider science and conceptual thought utterly incapable of grasping the real. Some are for the suppression of metaphysics, others for its revival; some are for identifying philosophy with epistemology, others reject epistemology as futile and barren; some are pragmatists, others anti-pragmatists; some are realists, others idealists; some are pluralists, some monists—but all are interested in the question of knowledge and its relation to other human activities, in the relation of science and philosophy, and kindred problems. For a number of years the international congresses of philosophy, the two American philosophical associations, the Aristotelian Society of London, and similar bodies in other countries have been debating the "new" issues—the Heidelberg Congress (1908) has been called the "pragmatist" congress—the periodicals are full of articles and discussions advocating and attacking them; and the number of books dealing with them is increasing.

LITERATURE OF THE NEW SCHOOLS. The most striking figures in the reform camp are William James (died 1910) and Henri Bergson. In many articles and books (*Pragmatism*, 1907, *A Pluralistic Universe*, 1909, *The Meaning of Truth*, 1909, *Some Problems of Philosophy*, 1911, *Memories and Studies*, 1911), James vigorously attacked absolute idealism, monism, rationalism, and intellectualism, from the standpoint of a never completely rounded-out system of pluralism, pragmatism, radical empiricism, and voluntarism. Bergson is interested in the larger, human problems: What are we? What are we doing here? Whence do we come and whither do we go? For him consciousness is action that continually creates and multiplies; matter action which continually unmakes itself and wears out; and matter and consciousness have a common source. Philosophy cannot reach mathematical certainty, but must be content with a high degree of probability. Science and logic abstract from the life of reality, give us a corpse instead of a living thing. Philosophy can grasp the life or core of being only by an immediate and simple intuition, a kind of direct feeling. Reason is not a mere instrument, but the source of life and action, and as such embraces feeling and will. Bergson has been called the philosopher of intuition, mysticism, and irrationalism. His books *Time and Free Will*; *Creative Evolution*; and *Laughter, an Essay on the Meaning of the Comic*, have recently been translated into English. The *Hibbert Journal*, October, 1911, contains an interesting article, *Life and Consciousness*, by Bergson, and a criticism of him by Balfour, *Creative Evolution and Philosophic Doubt*. Recent literature on Bergson: Lindsay, *The Philosophy of Bergson*; Stewart, *Critical exposition of Bergson's Philosophy*; Coignet, *De Kant à Bergson*; articles by Dolson (*Phil. Rev.*), Solomon (*Mind*), Perry (*Jour. of Phil.*), Carr (*Proc. Arist. Society*, 1910). Literature on Pragmatism: Royce, *W. James and Other Essays*; Flournoy, *La philosophie de W. James*; B. Russell, *Philosophical Essays*; Boutroux, *W.*

James; Ménard, *Analyse et critique des principes de psychologie de W. James*; Dauriac, *Le pragmatisme et le réalisme*; Positivisme, criticisme, pragmatisme (*Rev. Phil.*); Pères, *Pragmatisme et esthétique* (*Rev. Phil.*); Berthelot, *Un romantisme utilitaire*; Busch, *W. James als Religionsphilosoph*; articles by Lovejoy (*Int. J. of Ethics*), Perry (*Phil. Rev.*), Riley (*J. of Phil.*). Schiller offers a humanistic metaphysics in *Riddles of the Sphinx*, 2d ed. The book of the well-known Kant scholar Vaihinger, *Die Philosophie des Als Ob*, is the most significant German contribution to pragmatism. (Cf. Petzold, *Das Weltproblem vom relativistischen Standpunkte aus*.) Gaultier, *La pensée contemporaine*, and Fouillée, *La pensée et les écoles anti-intellectuellistes*, and Goldstein, *Wandlungen in der Philosophie der Gegenwart*, discuss the new schools. There are interesting accounts of the Bologna Congress (1911) by Creighton (*J. of Phil.*), Rey (*Rev. Phil.*), Ruge (*Zeitschrift f. Phil.*), and Falter (*Kantstudien*). Neo-realism is fully discussed, particularly in American and English journals, in the *Proceedings of the Aristotelian Society*, and in a supplement of *Rev. Met. et Morale*, by S. Alexander, Bode, Dewey, Joseph, Lovejoy, McGilvary, Miller, Perry, B. Russell, Spaulding, Stout, and others. Besides these authors and the idealists mentioned below, Drake, Fullerton, Hicks, Hollands, Montague, G. E. Moore, Nunn, and Wolf have contributed to the discussion in preceding years.

RECENT IDEALISM. Most of the followers of the new philosophy have come under the influence of the great movement that dates back to Kant; and there is no radical difference between many of them and the so-called idealists of recent times. The majority of the latter are not idealists in the old sense of that term, but in the sense of being opposed to materialism and mechanism as a comprehensive world-view; they are not subjectivists, phenomenologists, apriorists, and intellectualists; for them "the laws of knowledge, like the norms of the world of values, of morality, and art, do not constitute a principle foreign to the laws of nature" (Chiappelli), indeed, the subjective and objective sides of experience complete each other; experience is an organic whole which it is our business to resolve into its logical co-efficients. All this is particularly true of the younger generation of idealists, of Albee, Bakewell, Baillie, Bauch, Creighton, Gaultier, Hibben, Hicks, Messer, Rey, A. Rogers, Stout, and many others; it is likewise true, in the main, of the idealists already mentioned.

METAPHYSICS. With the exception of the translations of Bergson's works and of James's *Problems of Philosophy* nothing of importance has come from the new schools in the way of theories of the universe. The German and French translations of the Italian Enriques's *Problems of Science*, 2 vols., are interesting as representing the views of a modern scientist with pragmatic leanings. German idealistic thought is represented in a collection of twenty essays on philosophy and religion entitled *Weltanschauung* by Dilthey (died 1911), the biologist, Driesch, Adickes, Schwarz, Natorp, Simmel, Deussen, Troeltsch, Kaftan, and others; and in a new book by Eucken, *Können wir noch Christen sein?* A translation of Eucken's *Grundlinien einer neuen Lebensanschauung* has appeared under the title, *Life's Basis and Life's Ideal*. McDougall's *Body and Mind* and Becher's *Gehirn*

und Seele are important. Other books are: Windelband, *Präudien*, 2 vols. 4th ed., Heymans, *Einführung in die Metaphysik*; Natorp, *Philosophie*; Simmel, *Hauptprobleme der Philosophie*; Eleutheropulos, *Philosophie*; Kirn, *Weltanschauungen u. Welterkenntnis*; Kinkel, *Idealismus u. Realismus*; Tari, *Saggi di estetica e metafisica*; Becker, *Die moderne Weltanschauung*; J. Cohn, *Führende Denker*; Wobbermin, *Monismus u. Monotheismus*; Underhill, *Mysticism*; Bubnoff, *Zeitlichkeit u. Zeitlosigkeit*; Le Dantée, *Le chaos et l'harmonie universelle*; Dickinson, *Religion and Immortality*; Keyserling, *Unsterblichkeit*; Björklund, *Death and Resurrection*; Bowne, *Essence of Religion*. Interesting to the philosopher are: König, *Die Materie*; Ostwald, *Natural Philosophy*; Bernard, *Some Neglected Factors in Evolution*; Cuénot, *La genèse des espèces animales*; Rignano, *Inheritance of Acquired Characters*; Punnett, *Mendelism*, 3d ed.; Ségond, *Cournot et la psychologie vitaliste*; E. S. Russell, *Vitalism in Rivista di Scienza*, April, 1911; papers of Lovejoy on Vitalism in Science; also Rehmkne, *Das Bewusstsein*; Bohn, *La nouvelle psychologie animale*; Pickler, *Biologische Funktion des Bewusstseins*; Piéron, *L'évolution de la mémoire*; Dessoir, *Geschichte der Psychologie*; Klemm, *Geschichte d. Psychologie*; Villa, *Psicologia contemporanea*, 2d. ed.

LOGIC AND THEORY OF KNOWLEDGE. The literature in this field is as usual comprehensive and specialistic; indeed, the problem of knowledge remains the central one in modern philosophy. Besides the contributions already noticed under the new schools, we mention: Sigwart, *Logik*, 4th ed.; Höffding, *Der menschliche Gedanke*; *La pensée humaine*; Hodgson, *Some Cardinal Points in Knowledge*; Boodin, *Truth and Reality*; Leser, *Erkenntnistheorie*; Nelson, *Unmöglichkeit d. Erkenntnistheorie*; Lask, *Die Logik der Philosophie u. die Kategorienlehre*; Losacco, *Razionalismo e misticismo*; Aars, *Die Idee zum Ursprung des Gedankens*; E. Jones, *A New Law of Thought*; Lomer, *The Concept of Method*; Brown, *The Judgment of Difference*; Couturat and others, *Weltsprache u. Wissenschaft*.

HISTORICAL. Cassirer, *Das Erkenntnisproblem in der Philosophie u. Wissenschaft der neuern Zeit*; Heim, *Das Gewissensproblem in der systematischen Theologie*; Reiniger, *Philosophie des Erkennens* (from Descartes to Kant); Christiansen, *Kritik der Kantischen Erkenntnislehre*; Gross, *Form u. Materie des Erkennens in der trans. Aesthetik*; Pohorilles, *Erkenntnistheorie E. v. Hartmanns*; Ehrenberg, *Die Parteilung der Philosophie* (against Hegel and Kantians).

LOGIC OF THE SCIENCES. Bauch, *Studien zur Philosophie der exakten Wissenschaften*; Natorp, *Die logischen Grundlagen der exakten Wissenschaften*; *De la méthode dans les sciences*, 2 vols., by many authors; Winter, *La méthode dans la philosophie des mathématiques*; Whitehead and Russell, *Principia Mathematica*; Young, *Lectures on Fundamental Concepts of Algebra and Geometry*; Dingler, *Grundlagen der angewandten Geometrie*; Jourdan, *On the Theory of the Infinite in Modern Thought*; Sattel, *Begriff u. Ursprung der Naturgesetze*; Glahn, *Unser Körper als Grundlage des Naturerkennens*; Cohn, *Physikalisches über Raum u. Zeit*; Müller, *Problem des absoluten Raumes*; Sterzinger, *Logik u. Naturphilosophie der Wahrscheinlichkeitslehre*.

ETHICS. THEORIES AND SPECIAL PROBLEMS. Hastings, *Encyclopedia of Religion and Ethics*, vol. III; Sorley, *The Moral Life and Moral Worth*; Bosanquet, *Individuality and Destiny*; *Individuality and Value*; Russell, B., *Philosophical Essays*; Goldscheid, *Höherentwicklung u. Menschenökonomie*; Stern, *Monistische Ethik*; Dürr, *Das Gute u. das Sittliche*; Müller-Lyer, *Der Sinn des Lebens*; Croce, *Philosophie ae la pratique* (trans.); Rauh, *Etudes de morale*; de Gaste, *Essai d'un code moral basé sur la science*; Gonzales Pinillos, *Etica*; Morselli, *Il fondamento dell'idealismo etico*; Mausbach, *Katholische Moral u. ihre Gegner*; Le Dantec, *L'égoïsme*; Dorner, *Pessimismus*; Bensi, *Il genio etico ed alti saggi*; Temple, *Nature of Personality*; Hamillon, *Depersonalisation*; Dugas and Moutier, *La depersonalisation*; Surlbied, *La volonté*; Rehmkne, *Die Willensfreiheit*; Messer, *Das Problem der Willensfreiheit*; Bennett, *Justice and Happiness*; Jeudon, *La morale d'honneur*; Dromard, *Essai sur la sincérité*; Rogues de Fursac, *L'avarice*; van Buisael, *Le mal et ses origines*; Schroeder, *Psychology of Conduct*; Barrett, *Motire-Force and Motiration-Tracts*; Michotte et Prüm, *Etude expérimentale sur le choix volontaire*; Bligh, *The Direction of Desire*; Mercier, *Conduct and its Disorders Biologically Considered*.

HISTORY OF ETHICS AND ETHICAL IDEALS. Rogers, R., *Short History of Ethics*; Rand, *Classical Moralists* (selections from moralists); Wundt, *Geschichte der griechischen Ethik*, vol. II; Wundt, *Griechische Weltanschauung*; Martin, *Great Religious Teachers of the East*; Delbos, *La philosophie pratique de Kant*; Hudson, *The Treatment of Personality in Locke, Berkeley, and Hume*; Goetz, *Geschichte u. Kulturgeschichte*; Simmel, *Philosophische Kultur*; Delvailla, *Essai sur l'histoire d'idée de progrès*; Majewski, *La théorie de l'homme et de la civilisation*; Wehnert, *Jesu Diesseitsreligion*; Lahy, *La morale de Jésus*; Davis, *Influence of Wealth on Imperial Rome*; Thudichum, *Geschichte des Eides*.

LEGAL ETHICS. Barillari, *Diritto e filosofia*; Rolin, *Prolegomenes à la science du droit*; Dallari, *Il nuovo contrualismo*; Lévi, *La société et l'ordre juridique*; Joly, *Problèmes de la science criminelle*; García-López, *Questions pénales de délit*; Dubuisson and Vigouroux, *Responsabilité pénale et folie*; Mercier, *Crime and Insanity*; Falter, *Die Staatsideale unserer Klassiker*; Wilson, R., *Province of the State*.

SOCIAL PHILOSOPHY. McCunn, *The Ethics of Social Work*; Jones, H., *The Working Faith of a Social Reformer*; Worms, *La solidarité sociale*; Deploige, *Du confit de la morale et de la sociologie*; Baldwin, *The Individual and Society, or Psychology and Sociology*; Bernard, *Transition to an Objective Standard of Social Control*; Fouillée, *La démocratie politique et sociale en France*; Papers on Inter-racial Problems, ed. by Spiller; Simmel, *Soziologie*; Granger, *Historical Sociology*; Crozier, *Sociology applied to Practical Politics*; Margarita, *Le problème social*; Skelton, *Socialism*; Wundt, W., *Probleme der Völkerpsychologie*; Ruta, *Le psiche sociale*; Goldscheid, *Grundlegung der Sozialbiologie*; Mantagrin, *La psychologie sociale de Tarde*; Dupont, *Tarde et l'économie politique*; Vorländer, *Kant u. Marx*; Plenge, *Marx u. Hegel*; Perego, *L'individualismo etico di Fichte et il socialismo contemporanea*; Vis-

scher, *Religion u. sociales Leben bei den Naturvölkern*; Vernes, *Histoire sociale des religions*; Goldenweiser, *Totemism*; Avebury, *Marriage, Totemism, and Religion*.

MORAL EDUCATION. Paulsen, *Pädagogik*; Roenrich, *Philosophie de l'éducation*; Delvolvé, *Rationalisme et tradition: recherches des conditions d'efficacité d'une morale laïque*; Dubois, *Le problème pédagogique*; Gillet, *La valeur éducative de la morale catholique*; Sisson, *Essentials of Character*; Welton, *Psychology of Education*; Lévy-Alvarez, *L'éducation des femmes*; Rakic, *Die Erziehung durch Spiel und Kunst*.

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PHIPPS, Sir EDMUND HENRY CONSTANTINE. A British diplomat, died March 15, 1911. He was born in 1840 and was educated at Harrow. He entered the diplomatic service at an early age and in 1858 was appointed attaché to Berlin. He was transferred in rapid succession to Naples, Brussels, and Stuttgart. In 1863 he became a third secretary. He held appointments in various continental cities and in Washington and South America. He was appointed consul-general for the Kingdom of Hungary with the rank of secretary of legation. He was promoted to be secretary of the embassy at Vienna in 1885 and in 1892 was transferred to Paris and was later appointed one of the British commissioners of the Anglo-French commission for the delimitation of the British and French spheres of influence in the neighborhood of the Niger, and assisted in concluding the Sierra Leone and Gold Coast delimitation treaties. In 1894 he was promoted to be minister to Brazil. He was transferred to Brussels as minister in 1900 and held that position until the time of his death. In 1902 he was made a G. C. M. G.

PHOSPHATES. See FERTILIZERS.

PHOSPHOROUS. See CHEMISTRY.

PHOSPHOROUS POISONING. See OCCUPATIONAL DISEASES.

PHOTOTHERAPY. RÖNTGEN RAYS. Several new uses for the X-ray were found during 1911. Edling was able to diagnose pregnancy by this means. He obtained radiographs of the fetus as early as the beginning of the third month of pregnancy. Multiple gestation and abnormal position, and malformations can be readily recognized and intra-uterine pregnancies are detected at an early date.

Radiography was also used as a means of ascertaining whether or not an infant has lived. The means of medicolegal investigation to ascertain if a child has lived or not have been hitherto rather unsatisfactory. According to Baillant, radiography offers a means of determining this point. If the fetus has not lived none of the internal organs is visible, even if the radiograph is taken after the eighth day in summer and the fifteenth day in winter. Later on the whole arterial and venous system becomes visible on the negative, because putrefaction begins in the organs which functionate during intra-uterine life. On the other hand, in the bodies of infants which have lived, all the organs are visible if radiography is used as late as the tenth day after death. The only perceptible modification is produced by the increase of gas in the abdominal organs. There is no room for error in the interpretation of the results of radiography, whether it is used immediately after birth or later, because in either instance the results are different in the case of an infant which has lived from those in a fetus which has not lived.

Friedländer believes that the Röntgen ray is

valuable in the treatment of the enlarged thymus gland. He found that in cases of status lymphaticus, he could not only reduce the size of the thymus gland, but by exposing only the region of the thymus to the action of the X-ray, he could cause diminution in the size of the spleen and other lymph-nodes and could bring about a normal condition of the blood. One case treated six years ago showed no recurrence of the disease.

RADIUM. Haret introduced a new method of using radium and securing a greater penetration into the deep tissues. The procedure consists in employing electrolysis to make the radium, under the form of ions, penetrate through the skin into the cellular elements of pathological tissues. By this method a positive electrode, composed of a compress saturated with a dilute solution of radium bromide, is applied over the diseased region. Through this is passed an electric current of ten milliamperes for thirty minutes. Haret's researches have shown that electrolysis causes the radium ions to penetrate through the unbroken skin into the underlying tissues, muscle, periosteum, and bone, and that it reaches a depth of at least $3\frac{1}{2}$ inches, accumulates there in heavy doses, and remains for more than fifteen days without injury to the healthy cellular elements. Haret has applied this method in the treatment of ten cases of malignant neoplasms, the most important of which was a large sarcoma of the shoulder-blade in a young woman of 27. This sarcoma, after having diminished considerably in volume under the influence of Röntgen rays, remained stationary; but after several treatments with the radium, introduced by electrolysis, the tumor diminished and finally disappeared completely, together with the pains of which the patient had complained.

ULTRA-VIOLET RAYS. The germicidal action of light, particularly the ultra-violet rays, has long been known. One of the latest applications of this knowledge is the exposure of polluted water to the ultraviolet rays from a quartz-tube mercury-arc lamp of the "Westinghouse-silica" type. The method is based on experiments carried out in Paris in the Sorbonne laboratories. Its bactericidal action has been shown by many tests on water containing large numbers of *Bacillus coli* and other microorganisms. The apparatus consists of a trough or box provided with baffle plates through which the water is run in close proximity to the sterilizing lamps. It is necessary to clear a turbid water before treatment to insure penetration of the rays. An ultra-violet ray plant has recently been installed, as the result of competitive tests, at Marseilles, France, a city long scourged with typhoid fever. The cost of this mode of sterilization is said to compare favorably with that of the ozone process.

PHYSICS. It was not many years ago that a noted physicist stated that progress in physics from that time on could consist only in redetermining the values of the various physical constants with increased accuracy. Since that statement was made, the entire subject of radioactivity has been opened and the theory of relativity has been developed. This illustrates the difficulty confronting the man who attempts to review the progress of a science without the perspective which can come only from the several succeeding years. Since the year 1911 has been marked by no great epoch-making dis-

coveries, but rather by the enlargement and development of work started in previous years, a brief review of the chief results achieved in the past few years will be given in connection with the various topics.

RELATIVITY. To reconcile the negative results of the classic Michelson and Morley experiment with a theory of the ether which would account for the aberration of light, has long taxed the ingenuity of the leaders in theoretical physics. The explanation of this discrepancy by the Lorentz-Fitzgerald shortening, though suggestive, did not, for various reasons, seem altogether satisfactory. In 1905 Einstein published a paper in which he formulated a general theory of electromagnetic phenomena, some of the consequences of which seemed to furnish the desired explanation. This theory was elaborated in several subsequent papers.

As ordinarily stated there are two postulates in this theory. The first states that it is impossible by means of any phenomena which may be observed entirely within a moving system to detect any motion of that system as a whole relative to any set of axes fixed independent of the system. It follows from this that motion with respect to the ether, or in fact any motion except relative motion of two portions of matter, is meaningless. This at once explains the discrepancy in the old theory made evident by the results of the Michelson and Morley experiment.

The second postulate of this theory states that the velocity of the light emitted by a source in motion is independent of the velocity of that motion. Thus far this postulate has not been put to the test of direct experiment, though Comstock at the December, 1911, meeting of the American Physical Society called attention to certain astronomical phenomena which confirm it. An actual laboratory test would involve many experimental difficulties, but one or two crucial experiments have been recently suggested and we may hope for some data bearing on this within the next few years.

Since this theory was first suggested, many physicists have been engaged in applying it to various mechanical and electromagnetic problems. The relativity principle leads to the same shortening of matter in motion as that suggested by Fitzgerald and by Lorentz. It further leads to differences in time ("local time") as measured in stationary and moving systems. The dependence of the mass upon the energy associated with it is a striking consequence of this theory. Though the mechanics of very rapidly moving bodies is thus made more complicated, the treatment of electromagnetic phenomena is decidedly simplified, since the electromagnetic equations for stationary and moving systems are identical in form.

The work of the past year or two has been an elaboration of these revolutionary conceptions. Papers have been published in large numbers and almost every meeting of an organization of physicists has been enlivened by discussions on relativity. The bearings of this subject on the theory of elasticity (including the definition of a rigid body), the kinetic theory of gases, and the theories of radiation, have received particular attention.

LIGHT QUANTUM HYPOTHESIS. The "light bundle" hypothesis was first suggested something like a decade ago in the deduction of Planck's radiation law. Since then the importance of such an hypothesis has become increas-

ingly evident in all branches of theoretical physics. Not only the theory of light, but also the theoretical treatment of such questions as specific heat, conduction of heat and electricity in metals, photo-electric effect, and many other phenomena of molecular physics emphasize the importance of the conception of discrete units of energy. The bearings of this theory along many lines have been the subject of much discussion, but as yet this has not been productive of any definite conclusions that have commanded universal acceptance.

RADIO-ACTIVITY. While the large amount of painstaking work of the past few years on this subject has not been rewarded with such striking results as in the infancy of the science, it has done much to clarify our views of the actual processes involved in radio-active transformations and to increase and correct our numerical data concerning them.

As early as 1902 it was suggested by Rutherford and Soddy that helium might be one of the products of the disintegration of radio-active substances. In the following year Ramsay and Soddy succeeded in detecting by spectroscopic methods the presence of helium as one of the products of radium. Somewhat later it was suggested by Rutherford that the production of helium was intimately connected with the emission of α particles. The determination by Rutherford and Geiger of the number of α particles and the charge associated with a single α particle (see 1908 YEAR BOOK), together with the known value of $\frac{e}{m}$ for an α particle, enabled them to calculate its mass. Assuming that each α particle carried a positive charge twice as great as the negative charge of an electron, they found that its mass was approximately equal to the atomic mass of helium. The following year Rutherford and Royds separated the α particles from the other products of a number of radio-active substances. In each case the gas in the chamber in which the α particles were collected showed the characteristic helium spectrum. As calculated by Rutherford and Geiger, one gram of radium in equilibrium with its radio-active products should give out 13.6×10^{10} α particles per second. At standard conditions, this is equivalent to 158 cubic millimeters (approximately 0.01 cubic inch) of helium per year. The direct determination of this quantity by Sir James Dewar (1910) gave somewhat higher results. During the past year, Boltwood and Rutherford have made two determinations of the amount of helium produced by radium. The results agree with each other within 3 per cent.; their mean value is 156 cubic millimeters per year. This very close agreement with the calculations of Rutherford and Geiger, made three years earlier from entirely independent data, is very strong evidence of the truth of the theory of radio-activity in its present form, and of the accuracy of the measurement of its fundamental constants. Similar measurements of the amount of helium produced by radium emanation, radio-lead, and polonium were attempted. Owing to experimental difficulties, the results obtained were not so reliable as in the preceding work, but in general they agreed with it within the range of experimental error.

In the 1910 YEAR BOOK mention was made of the proposal of the Brussels Congress of Radiology and Electricity to establish definite stan-

dards of radio-activity. This work of Rutherford and Boltwood emphasizes the need of such standards, as a recalculation of Dewar's results from corrected values of his radium standard cut down by half the deviation of his results from the calculated values. Owing to the method used, the results of Rutherford and Boltwood are independent of the radium standard employed.

Owing to the rapid growth of the science of radio-activity, and to the number of investigators, it is natural that the nomenclature is in some cases inconsistent and misleading. The need of a thorough revision of the whole question was recognized by the Brussels Congress. It was but fitting that this very important work should have been undertaken by the man who has contributed more to the advancement of our knowledge along this line than has any of his contemporaries. Working with Geiger, Rutherford reviewed the results of a number of careful investigators on certain very short-lived radio-active products. These included the work of Geiger and Marsden—published early in 1910—which showed that either actinium emanation produces two α particles at a single disintegration or that there must be a very short-lived intermediate product. The maximum for the half-value period of this product was shown to be less than $1/10$ of a second. Early in 1911 Geiger demonstrated the existence of this short-lived product and found that its half-value period was approximately $1/500$ of a second. Geiger and Marsden also showed the existence of a similar short-lived product in the case of thorium emanation. Here the period for decay to half-value was about $1/5$ of a second. In both cases the short-lived product, which was found to have a positive charge, was isolated by the application of an electric field. These products were also studied by Mosley and Fajans with an apparatus especially adapted to the observation of such rapidly decaying products. Although the comparison of these results with those of former investigators did not clear up all the difficulties, they nevertheless aided greatly in the revision, along uniform and comprehensive lines, of the nomenclature of the various radio-active substances. The conclusions reached by Rutherford and Geiger are given in the following table.

URANIUM-RADIUM SERIES

Substance	Half-Value Period	Character of Radiation
Uranium	4.6×10^9 years	α [2.72]
Uranium X	21.8 days	β, γ
Ionium	104 years (possibly longer)	α [3.00]
Radium	1760 years	α, β [3.30]
Radium Emanation	3.86 days	α [4.23]
Radium A	3.0 minutes	α [4.83]
Radium B	26.7 minutes	soft β rays
Radium C	$\left\{ \begin{array}{l} C_1 \text{ 19.6 minutes} \\ C_2 \text{ 1.38 minutes} \end{array} \right.$	α [7.06]
Radium D		soft β rays

THORIUM SERIES

Substance	Half-Value Period	Character of Radiation
Thorium	3x10 ¹⁰ year	α [2.72]
Thorium 1.	5.5 years	
Thorium 2		
Meso-thorium	0.2 hours	β, γ
Thorium 3		α
Radio-thorium	730 days	[3.9]
Thorium X.	3.71 days	α [5.7]
Thorium		γ
Emanation	53 seconds	[5.5]
Thorium A	0.14 second	α
Thorium B	10.6 second	soft β rays
Thorium C	C ₁ 55 minutes	α [5.0]
	C ₂ few seconds	α [8.6]
Thorium D	3.1 minutes	β, γ

ACTINIUM SERIES

Substance	Half-Value Period	Character of Radiation
Actinium	?	?
Radio-actinium	19.5 days	α, β [4.8]
Actinium X	10 days	α [6.55]
Actinium		α
Emanation	3.9 seconds	[5.7]
Actinium A	0.002 seconds	α [6.5]
Actinium B	36 minutes	soft β rays
Actinium C	2.1s minutes	α [5.4]
Actinium D	4.71 minutes	β, γ

Where a rays appear the number in brackets gives the range in air in centimeters.

The particular value of this revision of terminology lies in the analogies between the correspondingly named products. For example, the "A-products" of radium, thorium, and actinium are all short-lived and all emit α rays, while the "B-products" and the "D-products" emit only β or β and γ rays. The "C-products" are seen to be quite complicated and more investigation is needed to clear up their real nature.

Besides these two very important advances in radio-activity, each of which is in a sense a summing up of much work which has accumulated in the past few years, a number of important investigations have added to our general stock of data in this field. Thus, Geiger and Nuttall have found that certain relations exist between the ranges of the α particles and the half-value periods of the emitting substances. In general the α particles of longest range were found to come from the most rapidly decaying products. It has often been noted that α particles of range less than 2.58 cm. have never been observed. In the light of these results, this fact may be explained on the theory that a shorter range would correspond to such an excessively slow production of the α particles that the instruments at present at our command fail to detect them.

R. W. Gray and Sir William Ramsay have

made a careful determination of the density of niton—i. e., radium emanation—using an extremely sensitive balance. From their determination they calculated its atomic weight to be 223. The result deduced on the disintegration theory from the known atomic weight of radium is 222.4. This agreement is further evidence in favor of the disintegration theory.

As far as our experimental knowledge is concerned, there is no evidence that the rate of radio-active transformation is affected in any way by changes in physical or chemical conditions. These changes, however, do not affect the structure of the atom. Since it is known that a strong magnetic field affects the period of vibration of the electrons within the atom, it was suggested that it might also affect the rate of radio-active transformation. However, careful tests made by P. Weiss and Piccard with very strong magnetic fields gave negative results.

In 1909 the very interesting phenomenon of radio-active recoil was observed. (See YEAB BOOKS for 1909 and 1910.) This has proved of great value in the study of certain radio-active phenomena. A notable example of this is the study of the short-lived products of thorium and actinium emanations by Mosley and Fajans, mentioned above. Recently Makower and Russ have observed that a copper reflector scatters a small portion of the recoil atoms from radium A. This is analogous to the scattering of α and β particles by metallic reflectors. In general the recoil atoms seem to be charged and thus act like ionized particles of short range. The work of Franck and Meitner shows that the mobility of the positively charged "rest-atom" is the same as that of the ions of the surrounding gas.

GENERAL ELECTRON THEORY AND DISCHARGE THROUGH GASES. In the 1910 YEAB BOOK the work of Prof. R. A. Millikan on the value of e , the elementary charge, was described at some length. Fuller details of this work have been published during the past year. Since Millikan's results are about 5 per cent. higher than the previously accepted values, his work has been subjected to very careful scrutiny. Among the critics have been F. Ehrenhaft, Przibram, and several other continental investigators. These men worked with metallic particles, which were much smaller than the oil drops used by Millikan. Their results were so discordant and differed so markedly from those obtained by other methods that they were at first led to question the existence of an elementary charge of the order of magnitude usually accepted. It was suggested that the results both of Millikan and of these investigators might be vitiated by the spontaneous movements of the particles known as the "Brownian movements." During the past year Fletcher, one of Millikan's associates, has applied the theory of the Brownian movements developed in 1905 by A. Einstein to the motion of charged particles. This theoretical treatment of the problem showed that the particles studied by Millikan were so large that his results were unaffected by these movements, while the work of Ehrenhaft, Przibram, and others was largely influenced by them. From similar observations Fletcher also determined the value of the charge carried by a gram atom. His results agree with those deduced from the laws of electrolysis.

This method of observing the behavior of a

charged oil drop has also been applied by Millikan to the study of the mechanism of gaseous ionization. He used a number of different ionizing agents such as β and γ rays and hard and soft X-rays. In each case in which the oil drop collided with an ion, the charge communicated to it by the ion was found to be equal to the elementary charge. From this he concluded that, in every case, ionization consists in the separation of a single electron from the neutral gas molecule.

The effects produced upon α and β particles by their passage through thin layers of matter has been recognized for some years as one of the most promising fields for the study of the ultimate structure of the atom. The atom is generally considered as made up of positive and negative charges in electrical equilibrium, but the exact distribution of these charges is still an open question. At the December, 1911, meeting of the American Association for the Advancement of Science, H. A. Wilson presented a paper in which he summarized three different theories that have been suggested by various investigators. Each one of these theories is supported by some experimental evidence, but each seems to fail in some particulars. One of these conceptions considers the atom as a sort of planetary system, consisting of a central positive charge surrounded by a number of electrons. The second is a modified form of this in which there are several positive charges instead of a single one. In the third theory, the positive electricity is pictured as a sphere of uniform density in which the electrons are imbedded.

On the last two of these theories J. J. Thomson has considered mathematically the deviations experienced by β rays in passing through matter. On comparing his results with those obtained by Crowther experimentally, he was led to adopt the third theory as the more plausible. The results of Crowther seem to indicate that the number of electrons in the atom is about three times the atomic weight. Following the same theory along somewhat different lines, Wilson has calculated, from the arrangement of the metals in the periodic system, that the number of electrons in the atom should be about eight times the atomic weight. In May, 1911, Rutherford published a paper in which he showed that the first hypothesis—that is, that of the simple planetary system—would satisfy the conditions imposed by the results of experiment if the radius of the positive charge was assumed to be about $1/300$ that of the atom. We may expect a large amount of investigation along this line in the near future.

Until 1910 Rutherford's theory that the velocity of an α particle at any point of its path is proportional to the square root of its remaining ionizing range was unquestioned. In that year Geiger showed that the velocity is proportional to the cube root of the range. These results have been confirmed during the present year by the work of T. S. Taylor on the ionization produced in a number of gases by the α particles from polonium. Taylor also found that the energy required to produce a single ion in the gases whose molecules were heavy and complex was less than that required in the case of the lighter and more simple gases. This indicates that in the latter the electrons are held in a more stable configuration.

By an ingenious adaptation of his famous

"cloud method" of showing ionization, C. T. R. Wilson has photographed the path of the radiation which produces ionization in a gas. In the case of α and β rays, these paths were found to be continuous, indicating a continuous production of ions. In the case of X-rays, however, these paths of ionization were found to be discontinuous, the parts showing ionization being very short in comparison with the remaining portions. These results agree with the theory suggested by Bragg, namely that ionization by X-rays is in reality due to the production of secondary β or cathode rays.

Though the canal rays (positive rays) have been known for a number of years, it is only within the last two or three that they have been made the subject of detailed study. J. J. Thomson has recently published two articles which deal with them. He finds that they naturally divide into three classes. In the first class are rays that are undeflected by either a magnetic or an electric field; this indicates that they consist of uncharged particles. There is a second class which he calls "secondary positive rays." These rays carry a positive charge and move with an approximately constant velocity. Further experiment has shown that there is a very close connection between the rays of the first class and those of the second, and probably one set of rays is the cause of the other. The third class consists of rays whose character is determined by the nature of the residual gas in the discharge tube. The mass of these moving particles is proportional to the atomic weight of the gas and their velocity depends upon the total difference of potential between the electrodes. From the values of e/m it has been shown that the particles making up these rays are really atoms or molecules of the residual gases. In some cases single atoms carrying double charges have been found, while in other cases each molecule is found to carry a single charge. In some cases, also, negatively charged particles have been found. Their presence supports the view that some of the rays are due to impacts between uncharged molecules and the rapidly moving particles. The positive rays from a hot lime cathode have been investigated by C. T. Knipp. By accelerating these by an electrostatic field, their energy was increased to such an extent that they were capable of affecting a photographic plate, and this method was used to study them. Knipp's paper is in the nature of a preliminary report, and in general his results are similar to those obtained by Thomson.

It is a well-known fact that when a beam of X-rays falls upon the surface of a metal, secondary X-rays are given off. The results obtained by several investigators, notable among whom are Barkla and Sadler, indicate that this secondary radiation may be divided into two parts. One part consists of rays whose character is similar to that of the incident beam and independent of the character of the metallic surface. During the past year it has been shown by Barkla and Ayers that this part of the radiation is polarized and that its intensity is greatest in the direction of the primary beam. These results are in accord with the electromagnetic theory of the nature of X-rays. From analogy with the scattering of light by small particles, this part of the secondary beam has been called the "scattered" radiation. The character of the other part of the secondary

beam is determined by the nature of the metal upon which the primary beam falls. This part is homogeneous as regards penetrating power, and this power is always less than that of the primary beam. The distribution of this radiation is uniform and independent of the direction or polarization of the incident beam. The emission of these rays is accompanied by a special absorption of the primary beam. From analogy with the corresponding phenomena in optics, this part of the secondary radiation has been called "fluorescent" X-radiation. The work of Sadler shows that the emission of secondary X-rays is accompanied by the emission of electrons. Some characteristics of this corpuscular emission are analogous to those of the well-known photo-electric effect.

In previous investigations of the photo-electric effect, contradictory results have often been obtained, some investigators finding that the effect increased with increasing wave length, and others finding that it decreased. Pohl and Pringsheim have made a careful study of the effect in amalgams of the alkali metals, and from their results have suggested a seemingly satisfactory explanation. They find that the normal photo-electric effect decreases with increasing wave length. In addition to this, however, there is a selective effect which is characteristic of the metal. If the incident beam is polarized, this selective effect occurs only when the electric vector lies in the plane of incidence. On the assumption that the electrons in the metal describe elliptical orbits about positively charged centres, Lindemann has calculated the wave lengths of the beams producing this selective effect in the different alkali metals. His calculations are based upon constants of the metals determined by means entirely independent of the photo-electric effect, and his results agree with remarkable accuracy with those determined experimentally.

The cause of the "after glow" in a discharge tube has been investigated by R. J. Strutt. He found that the yellow "after glow" in a tube containing air is due to the formation of nitric oxide and ozone and the subsequent phosphorescent combustion of the nitric oxide by the ozone. He also found that ozone would cause phosphorescent combustion of other substances such as sulphur and iodine. An "after glow" has also been observed when a heavy discharge takes place in pure nitrogen. The character of this glow is not affected by the action of a strong electric field, but its intensity is decreased by heating and increased by cooling. It is probable that the gas molecules have been dissociated in the discharge, and that the after glow accompanies their recombination. This chemical change is accompanied by extremely great ionization of the glowing gas, as is shown by the fact that its electrical conductivity is very high. This "active" nitrogen is found to react strongly with many substances with which nitrogen does not react in the ordinary form. The rate of decay of the phosphorescence in the electrodeless discharge in various gases has been studied by C. C. Trowbridge. His results indicate that the "after glow" is of the same nature as the phosphorescence of solids.

LIGHT For a number of years there has been a determined effort to bridge the gap existing between the shortest electric waves on the one hand and the longest heat waves of the infra-red spectrum on the other. There has been little

definite progress in the isolation of the extremely short electric waves of late and at present two millimeters is about the limit that has been reached. However, the past two years have witnessed great progress in the line of isolating and detecting the long infra-red waves. By the method of selective reflection, Rubens and Hollnagel succeeded in reaching wave lengths of about $100\ \mu$ (0.1 millimeter). See 1910 YEAR BOOK.

Late in 1910 a new method for the isolation of long heat waves was developed by Rubens and Wood. This consisted essentially in applying the method of chromatic aberration. By the use of a large quartz lens, waves of different lengths were brought to foci separated from each other by appreciable distances. A diaphragm with a small aperture placed at the focus of any desired wave length would then cut off most of the other radiation. The fact that quartz has a strong absorption band in the neighborhood of $60\ \mu$ to $80\ \mu$ was a great aid in purifying the remaining beam.

Early in 1911, by combining this method with that of selective reflection, Rubens made still further progress. He found that after the radiation from a Welsbach lamp was reflected from two calc spar surfaces and was then passed through two quartz lenses, a fairly homogeneous beam remained. This beam was analyzed by means of a quartz interferometer and was found to consist of a strong component of wave length $93\ \mu$ and a weaker component whose wave length was $116\ \mu$.

Rubens and von Baeyer next applied the quartz lens apparatus to the analysis of the radiation from the mercury arc inclosed in a quartz tube. In this way they obtained a beam whose mean wave length was $313\ \mu$. A study of the transparency of various common substances for these very long waves yielded some surprising results. Quartz, fluorite, and rock salt, which have strong absorption bands below $100\ \mu$, as well as paraffin, black cardboard, amber, and water, were found to be very transparent. Later improvements in their apparatus enabled them to separate this radiation into two wave lengths, $218\ \mu$ and $343\ \mu$. The isolation of heat waves of over $1/3$ of a millimeter ($1/75$ of an inch) wave length is certainly a remarkable achievement.

Du Bois and Rubens have used these long infra-red rays in studying the peculiar polarizing effect of very fine wire gratings. It has been shown both theoretically and experimentally by earlier investigators that when the grating space is small in comparison with the wave length, the transmitted radiation is polarized so that the electric vector is parallel to the grating slit, and that if the grating space is large compared to the wave length, the electric vector is perpendicular to the grating slit. By placing the grating at an angle to the incident beam, Du Bois and Rubens were able to vary the effective width of the grating space. In this way they were able to show the continuous transition from the polarization in one direction to that at right angles to it.

During the past few years Wood has devoted considerable attention to the fluorescence of sodium and iodine vapors. In his work on sodium vapor he showed that when this is illuminated by monochromatic light, the excited fluorescence consists of bands nearly equally spaced as regards wave length. These bands

he called "resonance spectra." His theory of this effect suggested that a similar result should be expected in the spectrum of iodine vapor, and very late in 1910 he confirmed this experimentally. During the past year he has continued this investigation with gratifying success. The presence of other gases which do not combine chemically with the iodine vapor was found to reduce greatly the intensity of the fluorescence. It has been suggested by Wood that this effect may be due to the fact that the molecules of the admixed gas "load" the vibrating electrons and so diminish the amplitude of their vibration. On this theory it would be expected that the more strongly electro-negative gases, such as oxygen and chlorine, would "load" the electrons more heavily than the less electro-negative gases, such as helium and argon. Wood's most recent experiments seem to confirm this deduction.

HEAT. For several years H. Kamerlingh Onnes has been investigating the properties of substances at very low temperatures at the Low Temperature Laboratory in Leyden. Temperatures as low as 2.5° absolute (455° below zero, on the Fahrenheit scale) have been obtained, and all gases, including helium, have been liquefied.

According to theory, the electrical resistance of pure metals should decrease with decrease of temperature and vanish at the absolute zero. During 1911 Onnes has shown that the resistance of pure mercury at 3° on the helium scale (about 3° absolute temperature, or -270° C.) is less than one ten-millionth of its resistance at 0° C.

PHYTIN. See BERIBERI.

PIERANTONI, AUGUSTO. An Italian jurist and publicist, died March 12, 1911. He was born at Chieti, Italy, in 1840. His education, which he obtained in his native city and Naples, was interrupted by the outbreak of war in Italy. He enlisted as a volunteer in Garibaldi's army and was with it at the victory of Volturno. When peace was declared he entered the ministry of public education at Naples and subsequently went to Turin. He published several works on international law and was installed as an instructor at the University of Modena. In 1866 he volunteered in the war with Austria, and on the conclusion of peace he was called to the chair of international law at the University of Naples. He later occupied the same chair at the University of Rome. In 1883 he was chosen senator and served through four legislative sessions. He was arbitrator for Italy at the conference relating to shipping in the Suez Canal in 1885. He was one of the founders of the International Law Institute at Geneva. He was a member of the permanent court of arbitration at The Hague. Among his best known works are *Gli arbitrati internazionali e il trattato di Washington* (1872); *Trattato di diritto costituzionale* (1873); *Il Senato e le leggi sociali* (1886); and *La rinunzia alla successione nel diritto internazionale privato* (1896).

PIERSON, ARTHUR TAPPAN. An American Presbyterian clergyman, author, editor, lecturer, and missionary, died June 3, 1911. He was born in New York City in 1837 and graduated from Hamilton College in 1857 and from the Union Theological Seminary in 1860. He was ordained a Presbyterian minister and in 1860 became pastor of a church in West Winsted,

Conn. He was afterwards pastor in Binghamton, N. Y., for three years and in Waterford, N. Y., for five years. He was pastor of the Second Presbyterian Church of Detroit for thirteen years and of the Presbyterian Church of Indianapolis for one year, and the Bethany Presbyterian Church of Philadelphia for eight years, until 1891. In the latter year he went to England to speak in behalf of the missionary movement. He became a substitute in Dr. Spurgeon's Metropolitan Temple pulpit, where he preached for two years. In 1902-3 and again in 1907-8 he was temporary pastor of Christ Church in London. He also gave lectures on the Bible at Exeter Hall, London, and at Scottish universities. In 188 Dr. Pierson became editor of the *Missionary Review of the World*, and was considered the leading authority of the denomination on foreign missions. Following the death of Dwight L. Moody, he was leader of the Northfield religious conferences. In 1910 the anniversary of his ordination and of his marriage was celebrated in the auditorium in East Northfield. A jubilee fund was started to send Dr. Pierson around the world on a missionary trip. He had visited Hawaii, Japan, China, and Korea, when he was obliged to turn back on account of illness. He was the author of many books. Among them are: *Miracles of Missions*; *New Acts of the Apostles*; *Seven Years in Sierra Leone*; *The Greatest Work in the World*; *The Pillar of Fire*; *The Heart of the Gospel*; *The Supernatural*; *The Making of a Sermon*; *Life of George Muller*; *The Divine Art of Preaching*; and *Bible Study and Spiritual Life*.

PIG IRON. See IRON AND STEEL.

PILCHER, JAMES EVELYN. An American surgeon, died April 8, 1911. He was born at Adrian, Mich., in 1857, graduating from the University of Michigan in 1879. He studied at the Long Island College Hospital and in 1883 was appointed assistant surgeon in the United States army. He was promoted to be captain and assistant surgeon in 1888 and major and brigade surgeon in the United States Volunteers in 1898. He retired from the army in 1900. From 1896 to 1898 he was professor of military surgery in the Ohio Medical University and lecturer on military hygiene at other medical schools in Ohio. In 1899 he became professor of anatomy and embryology at Dickinson College and from 1900 to 1903 was professor of sociology and economics in the same college. From 1899 to 1909 he was professor of medical jurisprudence in the Dickinson School of Law. He edited at various times the *Annals of Anatomy and Surgery*, the *Annals of Surgery*, and other publications. He was the author of *First Aid in Illness and Injury* (1892); *Life and Labors of Elijah Holmes Pilcher* (1893); *Arms and Seals of the State of Pennsylvania* (1902), and *The Surgeon-Generals of the Army* (1905).

PINEAPPLES. See HORTICULTURE.

PITMAN, BENJAH LANGLEY. An American Baptist clergyman and educator, died November 27, 1911. He was born in Torbrook, N. S., in 1862 and graduated from Brown University in 1887. He was ordained to the Baptist ministry in the same year, and in 1890 became pastor of the Free Street Church in Portland, Me., remaining until 1892, when he was elected president of Colby University. He remained in this position for three years, when he was chosen president of

Columbian (now George Washington) University. After continuing in this capacity for five years he accepted a call as pastor of the Fifth Church in Philadelphia. Here he remained for seven years, when he became pastor of the First Church in Seattle, Wash. This position he retained until the time of his death. From 1900 to 1907 he was lecturer at Bucknell University. He was the author of *Elements of Ethics* (1893); *Elements of Sociology* (1894); *Elements of Political Science* (1899), and *Outlines of Political History* (1900).

PITTSBURGH. See BUILDING, SMOKE PREVENTION, and PENNSYLVANIA.

PITTSBURGH ART EXHIBITION. See ART.

PITTSBURGH CIVIC COMMISSION. See POPULATION, CONGESTION OF.

PLAGUE. India experienced another grave epidemic of the plague during the early part of 1911. In a single week in February nearly 25,000 cases, with 22,278 deaths, were reported. Shanghai, China, also had an epidemic of plague, mostly confined to the thickly crowded Chinese section of the town, and considerable difficulty was experienced in stamping out the disease. Vigorous measures undertaken both by the foreign residents and the Chinese government were finally successful. Manchuria and northern China were also visited by an epidemic during the early part of the year. The disease here assumed a pneumonic and septicæmic type rather than the bubonic form, and spread rapidly from Harbin, the original focus, in all directions. The International Plague Conference called together by the Chinese government, after the outbreak of the plague in that country, held the opinion that it originated from a species of marmot called tarabagan, a fur-bearing animal of the squirrel family. This animal is extremely susceptible to plague and is killed in large numbers for its fur, which is shipped in great quantities to Harbin. By some it was believed that the disease was brought to Harbin through the infected hides which trappers bring there for sale. (See CHINA, *History*.) A vigorous quarantine established by the Russians and Japanese, and active sanitary measures taken by the Chinese government, finally resulted in the stamping out of the epidemic. It is interesting to note, however, that the plague was hailed by many Chinese as a blessing, particularly in those portions of the country which are overpopulated. One traveler found the people everywhere rejoicing at the prospect of a reduction in the number of inhabitants who were unable to gain a subsistence from the overcrowded land. See VITAL STATISTICS.

PLANKTON. See ZOOLOGY.

PLANT BREEDING. See BOTANY; HORTICULTURE.

PLANT DISEASES. See BOTANY.

PLANT PHYSIOLOGY. See BOTANY.

PLAYS, NEW. See DRAMA.

PLOW, TRACTION. See AGRICULTURE.

PLUMBONIOBITE. See MINERALOGY.

POETRY, ENGLISH AND AMERICAN. See LITERATURE, ENGLISH AND AMERICAN.

POETRY, FRENCH. See FRENCH LITERATURE.

POETRY, GERMAN. See GERMAN LITERATURE.

POINDEXTER, MILES. United States senator from Washington. He was born in Mem-

phis, Tenn., in 1868, and was educated at Washington and Lee University, where he also studied law. In 1901 he removed to Walla Walla, Wash. He was elected prosecuting attorney of Walla Walla county in 1892. In 1897 he removed to Spokane and from 1898 to 1904 was assistant prosecuting attorney of Spokane county and from 1904 to 1906 was judge of the superior court. In 1909 he was elected a member of Congress. He was one of the most conspicuous members of the progressive wing in the House of Representatives and in the elections of November, 1910, he received the nomination for United States senator, defeating the regular Republican candidate. He was accordingly elected by the legislature in January, 1911.

POLAND. See RUSSIA.

POLAR RESEARCH. The most important results of Arctic exploration for a few years preceding 1911 were: Peary's attainment of 87° 6' N. lat. on April 21, 1906, and his survey, in the same year, of the unexplored part of the coast of Grant Land; Roald Amundsen's achievement of the "Northwest Passage," in 1906, on his vessel *Gjøa*, skirting the American mainland; Capt. J. E. Bernier's important researches in the archipelago north of our continent in 1906 and 1908, taking possession, in the name of Canada, of many islands; the sledge journey of Mikkelsen and Leffingwell in 1907, for about 100 miles over the sea ice between 140° and 150° W. long., north of Alaska, their soundings apparently showing that they soon crossed the edge of the continental shelf and advanced over the deep polar basin. In 1907 Dr. Mylius Erichsen, with two comrades, mapped the northeast coast of Greenland, thus completing the outlining of the great island. They perished of cold and hunger on their way back to the ship, but their map was recovered. On April 6, 1909, Commander R. E. Peary reached the North Pole by a sledge journey from Cape Columbia, Grant Land. The journey on the sea ice, 475 miles, was made at the average rate of over 13 miles a day. Peary's soundings appear to show that he passed the edge of the continental shelf about fifty miles from land; in the neighborhood of the Pole no bottom was reached, the depth of the ocean there exceeding 9000 feet. Dr. F. A. Cook, returning from Greenland, advanced the claim that he had reached the North Pole in the spring of 1908, but the evidence he adduced was declared by expert geographers to be unsubstantial and his claim has not been allowed.

ANTARCTIC EXPEDITIONS. The most conspicuous result of Antarctic work since its resumption in 1897 was the sledge journey of Lieut. (now Sir) Ernest H. Shackleton, who, on January 9, 1909, after traveling far south over the Antarctic continent, reached a point about 111 statute miles from the South Pole in 88° 23' S. lat. and 162° E. long. Traveling over the Great Barrier ice, he and his three companions reached the coast of the continent in 83° 28' S. and then ascended a mighty glacier, 130 miles long; reaching its top, they stood on the ice cap of East Antarctica at an elevation of 10,477 feet above the sea. They found on this tremendous plateau seams of coal from 8 inches to 4 feet thick. Meanwhile, another party of the same expedition, traveling northwest from winter quarters over the inland ice, fixed the position of the South Magnetic

Pole in 72°25' S., 155°16' E. Dr. Jean Charcot, on his exploring vessel, *Pourquoi Pas?* left the Antarctic in February, 1910, having largely supplemented the discoveries he had made earlier in the region of West Antarctica, south of South America. When he went to that region little was known of the west coast of West Antarctica except the Gerlache Strait district and two rather vague land falls further south. The coast is now practically surveyed from Liège Island in 64° S. Lat. to Charcot Land in 70° S. Charcot's soundings have also proved almost to a certainty that there is land about half way between Charcot Land and King Edward VIth Land.

The trend of events in 1911 showed that, with the close of Peary's enterprises in the Arctic, the larger attention, for a time, would be given to Antarctic exploration. There were in 1911 four finely equipped parties in that field representing England, Germany, Norway, and Australia. The third British South Polar expedition was under the command of Capt. Robert F. Scott, who led the first British party; the second German South Polar expedition was led by Lieut. Wilhelm Filchner, who showed ability of the first class in his Chinese and Tibetan researches and has since spent a season, with a number of his men, in Spitzbergen as a preparation for his Antarctic enterprise. The Australian expedition was commanded by Dr. Douglas Mawson, the physicist of the Shackleton party. Captain Amundsen headed the Norwegian explorers. Twenty Japanese, under the leadership of Lieutenant Shirase, were also in the south with the purpose of trying to reach the Pole. Their schooner, the *Kainan-maru*, left New Zealand in February, 1911; but failing to penetrate the pack ice off Coulman Island, South Victoria Land, she sailed for Sydney and left that port in the fall for another attempt to reach a place favorable for Antarctic headquarters. The proposed second Scottish expedition under Dr. W. S. Bruce had not yet been organized, as adequate funds had not been obtained.

The English expedition on the ship *Terra Nova* safely reached its proposed headquarters about the end of 1910 near the foot of Mt. Erebus, South Victoria Land, the base from which the South Polar party was to start for the goal that Shackleton barely failed to reach. It was proposed to land a small party under the command of Lieut. L. A. Campbell on King Edward VIth Land to explore that region and its surroundings, but the ice conditions prevented landing, and thus this desirable feature of the programme was eliminated. The expedition is thus confined mainly to Scott's former field of work. In addition to the dash for the Pole, large preparations have been made for scientific research. Among Scott's assistants were Dr. E. A. Wilson, zoölogist, T. G. Taylor and W. G. Thompson, geologists, Dr. G. C. Simpson, meteorologist and physicist, Lieut. H. L. L. Pennell, student of magnetic phenomena, and Dr. E. L. Atkinson, bacteriologist.

The Australian expedition should be of especial interest to Americans, because Dr. Mawson hopes to reveal both the coast and the hinterland of the long line of shores discovered by Wilkes of our navy and long known as Wilkes Land. Mawson sailed from Australia in November, 1911, to attack this whole coast-

line between Cape Adare and Gaussberg. He had a suitable vessel, the *Aurora*, a whaler built at Dundee. His force numbered about fifty men (ship and land party) and practically every man in the land party was a scientific specialist, most of them from the universities of Australia and New Zealand. The plan was to land several parties with supplies and huts to winter between Cape Adare and Gaussberg. The first German expedition at Gaussberg established the fact that the land there is continental. The special aim was to accomplish a complete coast survey between these two points, to reveal the nature of the hinterland, and to complete the magnetic charting of the region north of the South Magnetic Pole. The several stations were simultaneously to dispatch coastal sledging parties, thus dividing up the work of the coast survey. A special journey was to be made inland from the main base to the South Magnetic Pole, thus completing the crossing of that corner of South Victoria Land. Norwegian-built sledges, drawn by Greenland dogs, were to keep up communications and replenish supplies at the stations. The sum of \$210,000 was raised for this expedition. Nearly \$700,000 had been put into the British, German, and Australian expeditions.

Lieutenant Filchner and his German comrades sailed on their fine vessel, the *Deutschland*, early in the summer of 1911, and carried on oceanographic work across the Atlantic to Buenos Ayres. The party then proceeded to the Sandwich group and, in December, sailed for Weddell Sea with the expectation of erecting winter quarters on Coats Land or some unknown land further south. The party included 9 scientific specialists and 25 sailors. Among the features of the equipment was an installation for wireless telegraphy, specially constructed motor cars, and both dogs and Manchurian ponies for sledge transport. The main geographical objects were to establish the eastern coast line of the land mass or masses, and if possible to learn the relations between the eastern and western portions of the land and ascertain whether water channels divide it into two or more masses. Filchner expected to make a sledge journey with five men across the unknown land and, if possible, was to travel as far west as Ross Sea, on the southern edge of which Captain Scott had his camp. The distance from Coats Land to Ross Sea is about 1800 miles and, under the best conditions, the German explorer could not expect to return to his headquarters in the same season, but would probably have to winter at the British camp. It was hoped, in advance, to establish supply caches for a considerable distance along the inland route. The scientific programme included, besides the strictly geographical work, investigations in geology, oceanology, biology, meteorology, magnetism, etc., and, if possible, the ship was to leave the land party to resume its oceanographical work. Filchner's scientific assistants included Dr. Barkow as meteorologist, Dr. Seelheim as geographer, Dr. Heim as geologist, Dr. Przybyllok as observer of astronomical and magnetic phenomena, and several others. The German programme included an astonishing amount and variety of work and, if good fortune favors, excellent results may be expected from this party.

Captain Amundsen left Europe on the *Fram* to double Cape Horn, reach Bering Strait through the Pacific, and then to enter the

Arctic Sea ice to drift for several years. He finally decided to make a dash for the South Pole. He reported as the reason for this change of plan that he had not been able to raise sufficient funds to buy all the supplies required for the Arctic drift. He therefore embraced the more spectacular opportunity in the belief that if he reached the South Pole he would have no difficulty in raising funds for the northern enterprise. Unable to make a landing on King Edward VIIth Land he found a great indentation or bay in the Great Barrier ice wall, where he moored the *Fram*, sledged all his supplies to the top of the Barrier ice, erected his hut and tents, and went into camp, which Amundsen named "Framheim," 150 feet above the bay, in about 78°40' S. lat., 164° W. long. His supplies of all kinds were sufficient for two years. Seals were found in large numbers and when the *Fram* steamed north the whole party were living almost entirely on seal meat and the explorer expected soon to have enough frozen seal to feed his 115 Greenland dogs all winter. He expected to lay down a main depot for the southern dash at 80° S. lat., and hoped to plant a smaller cache as far south as 83°. As his camp was about 500 statute miles east of Scott's headquarters it was hoped that when they left the Barrier ice to travel over the land, their routes would be so far apart as to prevent duplication of work on the way to the Pole.

The presence of two well equipped expeditions making simultaneous effort to reach the South Pole aroused expectancy to a high pitch at the end of the year. Those familiar with Antarctic exploration were confident that either Captain Amundsen or Captain Scott, or both, would reach the Pole before their return. Both explorers had experience of previous Arctic and Antarctic explorations. Captain Amundsen had from 1903 to 1905 made the Northwest Passage and located the magnetic pole. Captain Amundsen had an advantage over Captain Scott in that by placing his winter quarters on the ice, he was given a starting point nearly one degree further South than Captain Scott. While Captain Scott depended largely on ponies as motive power, Captain Amundsen took with him more than 100 Eskimo dogs, which in the opinion of many experts in polar research are superior in point of endurance to ponies. Still another advantage enjoyed by Captain Amundsen and his men was their skill in the use of the ski, with which the party was well equipped. This enables the explorer to make more rapid progress across the ice fields than is possible by any other means of locomotion. His companions included Captain Hjalmar Johansen, who was with him in his former explorations.

ARCTIC EXPEDITIONS. The chief work in the Arctic was done by Captain Bernier and V. Stefánsson. Bernier, in command of the Canadian government steamer *Arctic*, returned in September from his third series of explorations and studies in the Arctic Archipelago to the north of this continent. He reached a point within twenty-five miles of the Banks Land entrance to the Northwest Passage, but the ice conditions were so bad that he did not attempt to reach the Pacific by that route as he had planned. The expedition surveyed the 300 miles of unexplored coast between Fury and Hecla Strait and Cape Kater, thus establishing the western extension of Baffin Island. This is one of the large islands of the world and, gradually,

its unknown coasts, still amounting to several hundred miles, are being revealed. The scientific assistants have added largely to our knowledge of this vast region and their results are handsomely printed by the Canadian government after each voyage.

Stefánsson, the ethnologist, has done remarkable work in the past three years in the study of the Eskimos of the Canadian Arctic and their habitat. His results have been admirably supplemented by Mr. Anderson, the zoölogist, who has made large collections for the American Museum of Natural History. A large part of the time these men have been destitute of supplies from home. They have had to live entirely upon the game or fish they secured and, while enthusiastic in their scientific pursuits, the quest for their daily food consumed much time and involved periods of anxiety. The latest letters from Stefánsson are dated in 1910 and January 21, 1911. His tramping ground has been from the Colville River to Coronation Gulf through more than forty degrees of longitude, and from Great Bear Lake to the middle of Victoria Island, some four degrees of latitude. He has found and studied groups of Eskimos on the Colville and Coppermine Rivers, on Victoria Island, and elsewhere, who never saw a white man; a group on Victoria Island that in color and physiognomy approaches the European type, suggesting that a part of their descent may have been derived from the Icelandic whites who disappeared from Greenland in the fifteenth century. He has found many blunders on the maps. The Rivière is a mythical river; the Horton proves to be a large river, with an average width of 100 yards for 400 miles; not half the islands of Coronation Gulf have been mapped, etc.

Mr. Ernest DeK. Leffingwell was, at the close of the year, still living on the Alaskan coast with his Eskimo helpers surveying the badly charted coasts, making maps, and doing much other work of scientific quality between the Colville River and the Canadian boundary.

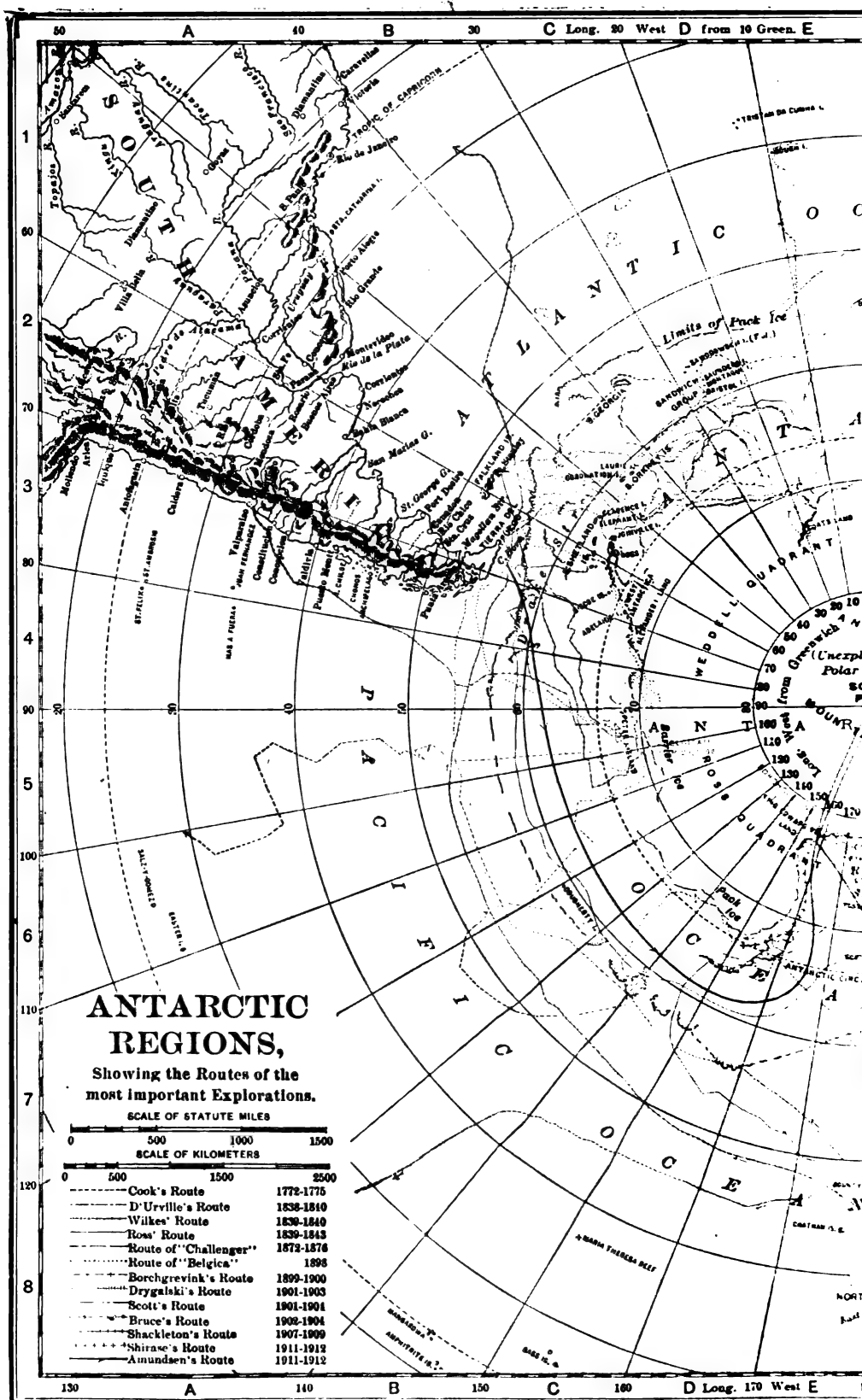
POLICY LOANS. See **INSURANCE**.

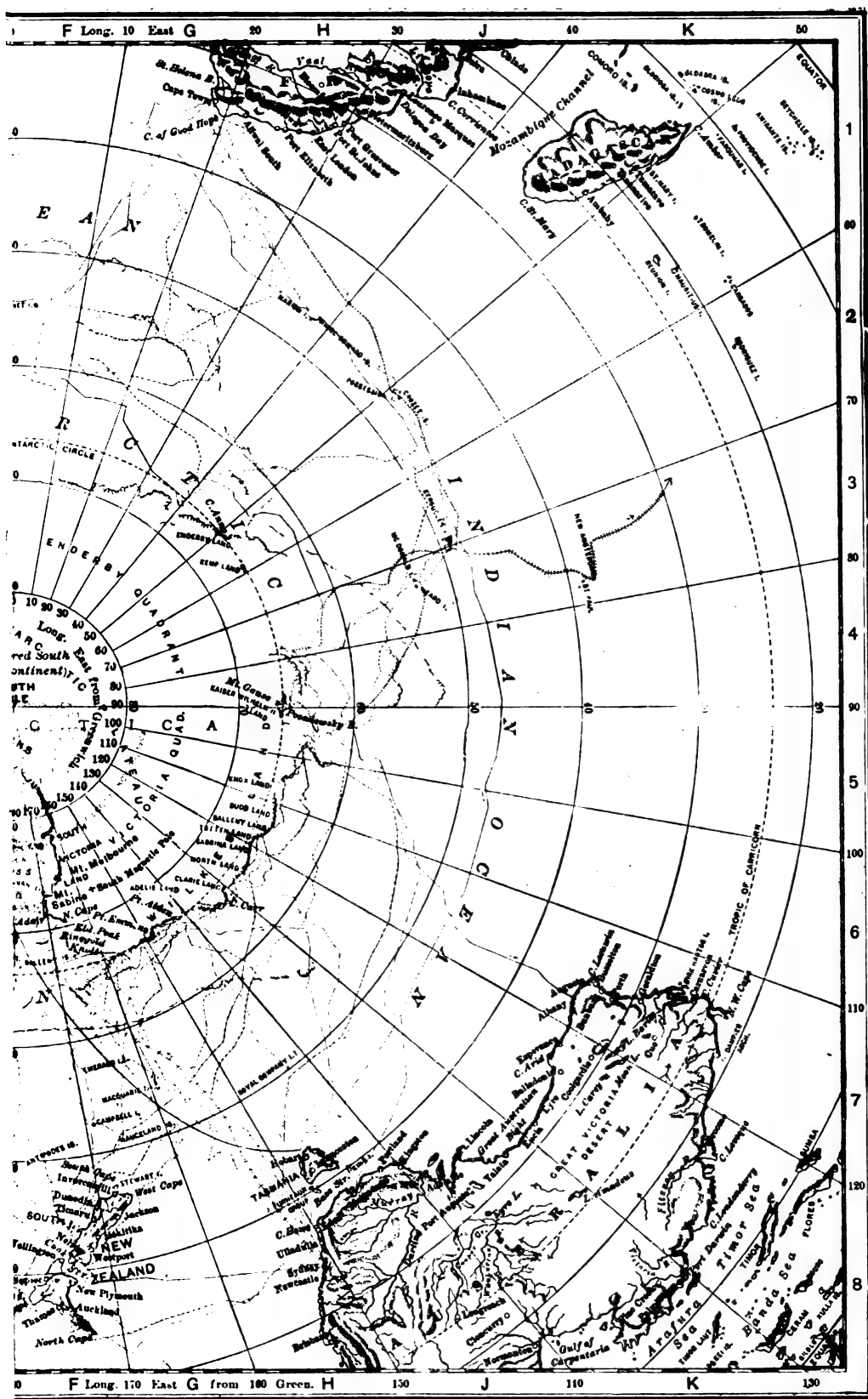
POLIOMYELITIS, ANTERIOR. See **INFANTILE SPINAL PARALYSIS**.

POLITICAL AND SOCIAL SCIENCE.

Topics falling under this general head will be found in the present volume under their respective titles, as, for example, **ARBITRATION**, **INTERNATIONAL**; **ELECTORAL REFORM**; **POLITICAL ECONOMY**; **SOCIOLOGY**; **LABOR**; **SOCIALISM**; **STRIKES**; **CHILD LABOR**; **CHARITIES**; **PENOLOGY**, etc. The following paragraphs present a list of the important books within this field published during the year, especially those of interest to the general reader.

The peace movement, now thoroughly organized and well endowed, is productive of a large amount of literature in pamphlet, magazine, and book form, the most influential of which was *The Great Illusion*, by Norman Angell, aiming to prove that a war is injurious to both parties, and conquest never profitable. Other volumes on the same subject are: *War and Its Alleged Benefits*, by J. Novicow; *The Peace Problem*, by Frederick Lynch; *War—What For?* by George R. Kirkpatrick; *War or Peace*, a present duty and a future hope, by Gen. Hiram M. Chittenden; *Universal Peace—War is Measurism*, by Arthur Edward Stilwell; *A Short History of War and Peace*, by George Herbert Per-





ris; *The International Law and Custom of Ancient Greece and Rome*, by Coleman Phillipson. The American Institute of Criminal Law and Criminology is publishing a series of translations of the works of foreign investigators, beginning with: *Modern Theories of Criminality*, by C. Bernaldo DeQuiros; *Crime*, its causes and remedies, by Cesare Lombroso; *Criminal Psychology*, by Hans Gross.

Among the many books on the position of woman, the first place must be given to *Woman and Labor*, by Olive Schreiner, in which the author of *Dreams*, and *The Story of an African Farm*, earnestly pleads for wider opportunities and fairer treatment for women in the industrial world. Here should also be mentioned: *Woman and Womanhood*, by C. W. Saleeby, from the viewpoint of eugenics; *Woman's Part in Government*, by William Harvey Allen; *The Modern Woman's Rights Movement*, by Dr. Kaethe Schirmacher; *A Short History of Women's Rights*, by Eugene A. Hecker; *The Suffragette*, a history of the woman's militant suffrage movement, by E. Sylvia Pankhurst. *The Man-Made World*, by Charlotte Perkins Gilman; *The American Woman and Her Home*, by Mrs. Newell Dwight Hillis; *Love and Marriage*, by Ellen Key.

The books on labor and socialism are numerous as ever, this year, and include some of considerable importance. A valuable source book, involving years of research, is the *Documentary History of American Industrial Society*, edited by John R. Commons, Ulrich B. Phillips, Eugene A. Gilmore, Helen L. Sumner, and John B. Andrews; prepared under the auspices of the American Bureau of Municipal Research, with the coöperation of the Carnegie Institution of Washington, completed this year with the ninth and tenth volumes. *The Pittsburgh Survey*, carried on under the auspices of the Russell Sage Foundation, is a thorough and well-written study of the social and industrial conditions of a steel city. *American Socialism of the Present Day*, by Jessie W. Hughn; *Socialism and Success*, by W. J. Ghent; *State Socialism in New Zealand*, by Le Rossignol and Stewart, a moderate view. *Socialistic Fallacies*, by Yves Guyot, an anti-socialistic argument. *Common-sense of Municipal Trading*, by George Bernard Shaw, a Fabian socialist view. *Business*, by Charles Edward Russell; *Socialism*, a critical analysis, by Oscar Douglas Skelton. *The Conflict between Individualism and Collectivism in a Democracy*, by Charles W. Eliot; *The Case for Socialism*, by Fred Henderson; *The Superstition Called Socialism*, by G. W. de Tunzelmann; *Social Solutions in the Light of Christian Ethics*, by Thomas C. Hall. *Syndicalism and Labor*, notes upon some aspects of social and industrial questions of the day, by Sir Arthur Clay. *The Nation as a Business Firm*, by W. H. Mallock; *Social Insurance*, a programme of social reform, by Thomas C. Hall. *Syndicalism and Labor, Iems of Organized Labor*, by Frank Tracy Carlton. *The Village Laborer, 1760-1832*, a study in the government of England before the Reform bill, by J. L. Hammond and Barbara Hammond. There are several volumes by Scott Nearing: *Social Adjustment*; *Solution of the Child Labor Problem*; *Wages in the United States, 1908 to 1910*. *A Year in a Coal Mine*, by Joseph Husband; *Boy Labor and Apprenticeship*, by Reginald Bray. *Labor in Europe and America*, by Samuel Gompers. *Unemployment*, a social

study by B. Seeborn Rowntree and Bruno Lasker, statistics of the unemployed poor, but not of the unemployed rich.

POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF. A learned society founded in 1889 for the purpose of promoting political and social science in a broad sense of the term. The membership in 1911 was 5766, distributed among every State in the Union and 35 foreign countries. The society issues a bi-monthly publication called *The Annals*, of which Prof. Emory R. Johnson, of the University of Pennsylvania, is editor-in-chief. During the year the subjects dealt with in these *Annals* were: "Political and Social Progress in Latin America," May, with a supplement, "The Living Wage of Women Workers"; "Risks in Modern Industry," July, with a supplement, "Uniform Child Labor Laws"; "American Produce Exchange Markets," September, with a supplement, "The Work of the National Consumers' League"; and "Commission Government in American Cities," November. The fifteenth annual meeting was held in Philadelphia, April 7-8, 1911. The general topic of discussion was "Risks in Modern Industry." The first session of the meeting was devoted to the subject of "Industrial Insurance and Retiring Allowances." Papers were read by Edwin De Leon, president of the Casualty Company of America, on "The Attitude of Casualty Insurance Companies towards Employers' Liability and Workmen's Compensation Legislation," and by F. Spencer Baldwin, of Boston University, on "Pensions for Municipal Employees." At the second session the topic for discussion was "Industrial Accidents in the United States and Their Prevention." Papers were read by Hon. J. C. Delaney, chief factory inspector of the State of Pennsylvania; James B. Reynolds, Esq., Mrs. Florence Kelly, and J. A. Holmes, director of the United States bureau of mines. At the third session was discussed "Defects in our Present Liability Laws." Miles M. Dawson, Esq., Talcott Williams, Joseph P. Cotton, Jr., and Lee K. Frankel read papers dealing with the subject. At the fourth session was discussed "Employers' Liability and Workmen's Compensation." Papers on this subject were read by William B. Dickson, Esq., William D. Lewis, dean of the law school of the University of Pennsylvania, William G. Smith, Esq., and Henry J. Harris, Esq. At the fifth and last session the subject discussed was "Recent Progress and Legislation, with reference to Employers' Liability and Workmen's Compensation." In this discussion Hon. Austin L. Crothers, governor of the State of Maryland, Hon. Simeon S. Pennewill, governor of Delaware, Hon. Charles P. Neill, commissioner of labor of the United States, and John Mitchell, vice-president of the American Federation of Labor, took part. The officers for 1911 were: President, L. S. Rowe, of the University of Pennsylvania; secretary, Carl Kelsey, University of Pennsylvania; editor, Emory R. Johnson.

POLITICAL ECONOMY. Economic problems and movements will be found treated under their respective headings. A general survey of the industrial and commercial conditions of the year is given under **FINANCIAL REVIEW**. Under **LABOR** will be found references to a number of topics treating various aspects of that general subject. Under **BANKS AND BANKING** will be

found a discussion of general banking conditions and cross references to the several kinds of banking institutions, MONEY, etc. There are special articles on the following: PRICES, including the cost of living; TRUSTS, besides articles on STANDARD OIL COMPANY, AMERICAN TOBACCO COMPANY, and UNITED STATES STEEL CORPORATION; TARIFF; INSURANCE; and TAXATION. Social economic topics are treated under their own headings, as OLD-AGE PENSIONS, CHILD LABOR, WOMEN IN INDUSTRY, WORKINGMEN'S INSURANCE, CONGESTION OF POPULATION, EMPLOYERS' LIABILITY, JUVENILE COURTS, MINIMUM WAGES, OCCUPATIONAL DISEASES.

AMERICAN ECONOMIC ASSOCIATION. The Twenty-fourth annual meeting of this association was held in Washington, D. C., December 27-30, being in some respects the most noteworthy in its history. The attendance was larger and more visitors from the general public were attracted. The presidential address by Prof. Henry W. Farnum of Yale University was devoted to the "Economic Utilization of History." For the first time the association was honored by an address by the President of the United States. President Taft spoke on scientific methods of framing a federal budget. In connection with the American Statistical Association, the "Rural Conditions in the South and the Decline of the Rural Population of the United States" were discussed. The tendencies with respect to land tenure since the Civil War were brought out; and the general decline in the rural population of western New York and northwestern Pennsylvania and in the corn-belt of the Middle West was shown. The decline in the latter section, however, has not resulted in a decline of production on account of the increase in the number of work horses, the value of farm machinery, and the better methods of cultivation. One of the most interesting sessions was that in connection with the American Sociological Society (q. v.) on the subject of immigration.

A number of interesting round table meetings were held upon Terminology in Economic Theory, the Cost of Living (q. v.), and Industrial Efficiency, and the Interests of Labor. A session was also held with Section I of the American Association for the Advancement of Science on the corporation problem. Prof. Frank A. Fetter of Princeton University was chosen president for 1912, and Boston the place of meeting.

BIBLIOGRAPHY. In addition to the books listed below consult the lists to be found under LABOR, PENOLOGY, SOCIOLOGY, WORKINGMEN'S INSURANCE, and WOMEN IN INDUSTRY.

GENERAL THEORY. Among the general treatises of the year the most notable were the following: *Principles of Economics* (2 vols.), by E. W. Taussig; Chicago University, Faculty of Political Economy, *Outlines of Economics*; *Elementary Principles of Economics*, by Irving Fisher; *History of Economic Thought*, a critical account of the origin and development of the economic theories of the leading thinkers in the leading nations, by L. H. Haney; *Business Administration*, 10 vols., published for the La Salle Extension University, W. D. Moody (ed.); *Syllabus for Economics I.*, by E. V. Phelan; *Outlines of Political Economy*, by S. J. Chapman; *Disturbing Elements in the Study and Teaching of Political Economy*, by J. Bonar; *Economic Prejudice*, by Y. Guyot; *Contribution to the Critique of Political Economy*, by K. Marx; *A Documentary History of American Industrial*

Society, J. R. Commons, ed.; *Industrial Depressions, Analysis of Causes, Classification, and a Practical Remedy*, or *Iron, a Barometer of Trade*, by George H. Hull; *The Science of Wealth*, Home University Library, by J. A. Hobson; *Das Problem der Wirtschaftskrisen im Lichte der neuesten nationalökonomischen Forschung*, by W. Fissler; *Cost Keeping for Manufacturing Plants*, by S. H. Bunnell; *The Principles of Industrial Management*, by John C. Duncan.

The great attention being given in the United States and England to agricultural life resulted in several notable books: *Report of the Commission on Country Life*, with an Introduction by Theodore Roosevelt; *Land Problems and National Welfare*, by Christopher Turnor; *The Country-Life Movement in the United States*, Rural Outlook Series, by L. H. Bailey; *A System of Tenant Farming and its Results*, Farmers' Bulletin 437, by J. W. Froley and C. B. Smith; *Government Lands and How to Obtain Them*, a digest of the rules and regulations governing entries, by C. L. Gilmore; *A Study of English Agricultural Economics*, by H. Levy, trans. by Ruth Kenyon; *British Rural Life and Labour*, by F. G. Heath.

TAXATION. The new literature on taxation and public finance consisted mainly of studies of special taxes and public documents. No general treatise of the entire field was put out. The following list is suggestive of the principal lines of development: *A Study of the History, Theory, and Practice of Income Taxation at Home and Abroad*, by Edwin R. A. Seligman; *Moral und Technik bei der Veranlagung der preussischen Einkommensteuer*, by F. Meisel; *Zur Geschichte der Vermögensteuern*, by B. Moll; *Taxation: a Problem*, by R. F. Sturgis; *A History of Public Permanent Common School Funds in the United States, 1795-1905*, by F. H. Swift; *Taxation of Corporations*, Part III., prepared by the commissioner of corporations; *The Cost of Our National Government*, by Henry James Ford.

MONEY AND BANKING. The subjects of money and banking have received an unusual amount of attention in the last few years not only in the United States but in foreign countries. It is always a subject of interest and study and has been a chief topic ever since the panic of 1907. Among the books of the year were: *Banques d'Emission et Tresors public*, by Raphael Georges-Lévy; *Building loan and savings associations, how to organize and successfully conduct them*, by H. S. Rosenthal, 2d edition, rev. and enl.; *The Purchasing Power of Money: Its Determination and Relation to Credit, Interest, and Crisis*, by Irving Fisher and Harry G. Brown; *Banking Reforms in the United States*, by O. W. M. Sprague; *A Comprehensive Study of the Advantages of the Branch Bank System*, by H. M. P. Eckardt.

TRADE AND TRANSPORTATION. Among the year's output of new books were the following: *Imperial Telegraphic Communication*, by C. Bright; *All about Railways*, by F. S. Hartnell; *Le petit commerce français, sa lutte pour la vie*, by Martin Saint-Léon; *Public Ownership of Telephones on the Continent of Europe*, by A. N. Holcombe; *Railway Rate Theories of the Interstate Commerce Commission*, by M. B. Hammond; *Scientific Management and Railroads: being Part of a Brief submitted to the Interstate Commerce Commission*, by Louis D. Brandeis; *Problems of Railway Regulation*, by

Henry S. Haines; *American Railway Problems, in the Light of European Experience*, by Carl S. Vrooman; *Business, Accounting, and Auditing*, by William Morse Cole; *Shop Management*, by F. W. Taylor; *Kartel and Trust*, by Dr. S. Tschierschky; *Kartel-Probleme*, by Wilhelm Kantorowicz; *Municipal Franchises; a description of the terms and conditions upon which private corporations enjoy special privileges in the streets of American cities—Vol. II., Transportation Franchises, Tazation, and Control of Public Utilities*, by D. F. Wilcox; *The Special Law governing Public Service Corporations and all Others engaged in Public Employment*, 2 vols., by B. Wyman; *Report on the Pulp and News-Print Paper Industry*, by the Tariff Board; *Summary of Report of the Commissioner of Corporations on the Steel Industry*.

MISCELLANEOUS. *How Money is made in Security Investments; or a Fortune at Fifty-five*, by H. Hall; *The History, Law, and Practice of the Stock Exchange*, 2d ed., rev., by A. P. Poley and F. H. C. Gould; *Influencing Men in Business; the Psychology of Argument and Suggestion*, by W. D. Scott; *Cotton Futures*, by A. B. Shepperson.

POLITICAL SCIENCE ASSOCIATION.

AMERICAN. A learned body, founded in 1903 for the study of subjects described in its title. It had a membership in 1900 of approximately 1400. The association holds annual meetings. The meetings of 1911 were held during the last week in December in Buffalo, Ithaca, and Toronto. These meetings were held in conjunction with the American Historical Association (q. v.). The most notable paper read at the meetings was entitled "The Courts in their Relation to Constitutions and Statutes," by Prof. Roscoe Pound. The general topic of the session was "The Courts and Judges as Governing Bodies." Professor Pound traced the relation of the courts to popular views of the Constitution, found historical explanation for the general reliance upon interpretation as a corrective of legislation. In other sessions the association discussed "State Constitution Making," on which papers were read by J. B. Dunn of Indianapolis and Prof. J. Q. Dealey of Brown University. In an address on "The County Problem in Municipal Government," F. D. Bramhall of the University of Chicago gave a survey of the corporate control over Cook county. A discussion of "State Political Organization" was led by Herbert Croly. The association published the *American Political Science Review*, and an annual volume of *Proceedings*. Prof. Albert Bushnell Hart was chosen to succeed Governor Baldwin as president of the association. The meeting for 1912 will be held in Boston and Cambridge.

POLLARD, J. PERCIVAL. An American author and playwright, died December 17, 1911. He was born at Greifswald, Pomerania, in 1869. He removed to the United States in 1885. He entered journalism on the St. Joseph, Mo., *News*, and was afterwards engaged in editorial work in Chicago and New York. He was the author of *Figaro Fiction* (1892); *Dreams of To-day* (1897); *Recollections of Oscar Wilde* (1906), and a play, *The Ambitious Mrs. Alcott* (1907).

POLLEN, PRESERVATION OF. See **HORTICULTURE**.

POLO. Polo never before attained such popularity in the United States as it did in 1911. This was largely due to the international

matches played on the Hempstead Plains at Westbury, L. I., between the Meadow Brook Club of the United States and the Hurlingham Polo Club of England. These matches attracted great interest throughout the entire sporting world and were witnessed by thousands of spectators.

The American team was made up of Lawrence Waterbury, J. M. Waterbury, Jr., Harry Payne Whitney, and D. Milburn. The British team consisted of Capt. Leslie St. George Cheape, Lieut. A. Noel Edwards, Capt. J. Hardress Lloyd, and Capt. H. Herbert Wilson. The Americans were the victors in both matches played, winning the first by a score of $4\frac{1}{2}$ to 3 and the second by $4\frac{1}{2}$ to $3\frac{1}{2}$. It was the opinion of experts before the competition that the Meadow Brook players would have an easy victory and the closeness of the matches proved a great surprise. The results of previous matches between the two countries were: 1886—Great Britain won 2 games, America 0; 1900—Great Britain scored 8 goals, America 2; 1902—Great Britain won 2 games, America 0; 1909—America won 2 games, Great Britain 0.

Before the international matches were played in 1911 the British team defeated Bryn Mawr 12 to $5\frac{1}{4}$; Cooperstown 14 to 5; Red Freebooters 8 to 3; Rockaway Hunt Club $9\frac{1}{2}$ to $5\frac{1}{2}$. The British players lost to a picked team (Alexander Brown, R. La Montagne, Joshua Crane, and W. H. T. Huhn) 5 to $7\frac{1}{2}$ and to the Rockaway Freebooters $1\frac{1}{4}$ to $10\frac{3}{4}$. In other important matches of the year Meadow Brook defeated Myopia 7 to 2; Philadelphia Country Club, $16\frac{1}{2}$ to $5\frac{1}{2}$; Cooperstown $10\frac{1}{2}$ to $6\frac{1}{2}$, for the Westbury challenge cup; and 14 to 7 in final for Cedarhurst trophy; Great Neck $18\frac{1}{4}$ to $10\frac{1}{4}$ for Meadow Brook Club and Westbury challenge cups; Rockaway $14\frac{1}{2}$ to 12 for the senior championship. Bryn Mawr defeated Cooperstown $11\frac{1}{4}$ to 7 and 6 to $4\frac{1}{4}$; Devon 13 to 9 for the Philadelphia Country Club cup; Cooperstown $11\frac{1}{4}$ to $5\frac{1}{4}$ and Devon 17 to 8 for the Wootton cup; Cooperstown $12\frac{1}{2}$ to $\frac{1}{2}$ for the junior championship. New Haven won the Watch Hill cup by defeating Cooperstown $6\frac{1}{2}$ to $3\frac{1}{4}$, The Atlantic cup by defeating Aiken 13 to $10\frac{1}{4}$ and the Raulagah cup by defeating the Meadow Brook Magpies 17 to $2\frac{1}{2}$. Cooperstown defeated Great Neck 13 to $6\frac{1}{2}$ for the Hempstead cup.

POLTAVA. See **BATTLESHIPS**.

POMERENE, W. ATLEE. United States senator (Democrat) from Ohio. He was born at Berlin, O., in 1863 and graduated from Princeton University in 1884. He studied law at the Cincinnati Law School and after receiving his degree practiced at Canton, O. He was city solicitor from 1887 until 1891. In 1896 he was elected prosecuting attorney of Stark county, serving three years. He was chairman of the Ohio State Democratic convention, which in June, 1910, nominated him for lieutenant-governor on the ticket with Governor Harmon. He was elected lieutenant-governor November 8, 1910, but on June 10, 1911, was elected United States senator to succeed Senator Dick. (See OHIO.) His term of office expires in 1917.

POOL. See **BILLIARDS**.

POPULATION. CONGESTION OF. This subject received unusual attention in 1911 in a number of American cities. The reports of the New York commissions noted below were the most important studies, but numerous local investigations were also made. It is now every-

where recognized that the evils of congested population are numerous and fundamentally important for the welfare of a large portion of the industrial population of the country. The physical effects are found at every age of life. Thus the death of children under five years of age in New York is about 52 per 1000; but in congestive blocks the death rate of children runs as high as 92 per 1000. Even persons of mature years have their general efficiency reduced and their susceptibility to various diseases increased. Tuberculosis is considerably aggravated in congestion areas. Similarly the congested sections are considered nurseries for crime. Indeed some students find a direct connection between recent apparent increase of crime in the United States and the existence of many sections of congested population. The economic effects are equally important. Low wages and high rents go hand in hand with congestion and with increased land values and higher costs of building construction. Low wages doubtless form one of the causes of congestion, but congestion in turn reacts upon standards of living and consequently upon wages.

Among the events of the year was an investigation at Columbus, O., by the Associated Charities. This disclosed an unexpected number of dark rooms, of houses with no water supply, of houses using cistern water, of houses without decent toilet facilities, and other evidences of bad housing conditions. This was in part responsible for the passage of a new housing code by the city council. This was a very great improvement, setting a standard equal to the best in the country. The height of tenement houses as related to width of street was regulated; rear tenements and dwellings were prohibited; yard space, front and rear, was required; and regulations were passed regarding wooden and fire proof construction. The Pittsburgh Civic Commission was one of the sixty authorities in as many different cities which in recent years have called in experts on city planning and other means of relieving congestion and bettering the housing and transportation of the city. Los Angeles began the erection of a model village. Salem, Mass., organized a board of city plan commissioners. Binghamton, N. Y., engaged an expert on city planning. Governor Foss of Massachusetts appointed a metropolitan planning commission. A movement was started in Brooklyn for the reduction of congestion, the elimination of the 49,000 dark interior bed rooms and the 103,000 illegally lighted rooms in Brooklyn tenements. Some interest also was aroused in San Francisco, where as yet no sufficient attempt has been made to prevent the development of bad conditions.

The Third National Conference on City Planning and Congestion was held at Philadelphia, May 15-17. Plans of sixty American and forty foreign cities were on exhibition. Addresses were made by leading American experts as well as by Thomas Adams of the Local Government Board of England, Raymond Unwin, the Garden City architect, and Thomas Morsin of the University of Liverpool. Considerable difference of opinion developed between Mr. Lawrence Veiller, who advocated many streets and short lots in the poorer quarters of the city, and the exponents of the Garden City idea, who favored infrequent streets, with vacant yard space in front and rear, and with special plots dedicated

to gardening and recreation. The conference approved the bibliography on town planning being prepared by Harvard University and the lectures on this subject given at Columbia University, 1911-12. Another resolution called for the appointment of a commission by the national government to suggest town planning possibilities in the United States.

NEW YORK COMMISSIONS. The most important reports of the year were those of the New York Commission on Congestion of Population and the New York Commission on the Distribution of Population. The former of these commissions was appointed in 1910 by Mayor Gaynor and was composed of nine aldermen and eight prominent citizens. It published a report of five hundred pages early in March. It is impossible more than to hint at its findings. Out of 122 blocks which in 1905 had a population of 150 or more per acre it found that 65 had increased in density. It found that room crowding was increasing in both Manhattan and Brooklyn and was not stopped by the tenement house laws. Out of the 750,000 factory operatives in Greater New York more than 500,000 work below 14th Street on the East Side and below 20th Street on the West Side. It found that the average wage of factory operatives was \$537 per year, although a committee of the State Conference on Charities and Corrections had reported a minimum income of \$800 per year to be necessary for the support of a family in New York City. It found that these operatives were compelled to live near the factory on account of long hours. The early hour of starting work and the poor transit facilities therefore resulted in high rents and more room and acreage congestion. Owing to the fluctuations in industry many families would do contract work in the tenement to tide themselves over periods of depression. The concentration of office buildings in lower Manhattan, necessitating a large number of caretakers, also added to congestion. Among the causes of congestion the commission enumerated the following, several of which overlap: 1, Poverty, defined as inability to maintain a reasonable standard of living; 2, concentration of factories and offices; 3, consolidation of the five boroughs; 4, intensive use of land; 5, high price of land due to intensive use; 6, lack of control over aliens and citizens; 7, long hours of work; 8, cost of transit and the transit policy of the city; that is, the commission held that the transportation of the city should be controlled by social considerations rather than by commercial ones; 9, lack of a definite city plan; 10, present system of taxation, which penalizes the man who owns land improved by buildings; 11, failure to prepare the land for housing purposes; 12, methods of public and especially of private charities; 13, failure of the city to adopt a policy to attract people to the outlying boroughs; 14, immigration and failure to distribute and control it.

The recommendations of the commission were embodied in 29 bills and ordinances, of which seven were presented at Albany. Among these was one limiting the height of all buildings hereafter erected or altered south of 181st Street. Others required fire-proof construction; established a system of zones for factories and for buildings of different heights; required a license to take in lodgers; made compulsory the acquisition of land in advance of public

need for parks and playgrounds and school sites; empowered the Tenement House Department to vacate all insanitary and dark rooms; closed certain streets in congested areas so that children could use them for playgrounds. The commission favored the increasing of cheap transportation facilities. Doubtless its most important proposal, embodied in one of the bills presented to the State legislature, was that the tax on improvements be reduced to one-half the tax on land. This recommendation was based on evidence from Australia, New Zealand, certain German cities, and western Canadian cities that this plan has uniformly decreased speculation in land and increased building construction. The commission would bring about this modification in taxation gradually during five years.

The New York Commission on the Distribution of Population was appointed by Governor Hughes in October, 1910, and made a report to Governor Dix in February. Its recommendations were embodied in three bills. One of these provided for the creation of a commission to continue the study of the problem of distribution of population; another authorized inquiry into the extent, conditions, and results of home work in tenements. The third bill required the State Department of Labor to prepare an annual industrial directory showing opportunities for manufacture in the cities and villages of the State. It recommended systematic city planning by all cities; the removal of public and private institutions out of cities wherever they increase congestion; the teaching of school gardening and greater publicity as to the agricultural opportunities of the State; the study of the possibility of creating small holdings in country real estate; and vocational farm training by means of special schools.

TAXATION AND CONGESTION. Following the above recommendation of the New York City Commission for a change in taxation methods attention was called to the practices in other countries. Germany began to tax the unearned increment in land values in 1904 in Frankfort. Since then the system has spread to nearly every large city and the Reichstag has extended it to all communities as a source of both local and imperial revenue. It is found to discourage speculation, to force land into use, and to encourage building. Similarly the reduction of the appraised value of houses and improvements in Australia had the effect of reducing land speculation. Vancouver, British Columbia, reduced the taxation on improvements by 50 per cent. The result was the doubling of building permits. This had the effect of increasing the demand for labor and the raising of wages. It was believed by some to have stimulated the growth of Vancouver at the expense of neighboring cities in Oregon. Prof. Frank J. Goodnow of Columbia, who was chairman of the committee on taxation of the above commission, while believing it to be a valuable policy, did not think its influence sufficient to justify reliance on it as a chief method of relieving congestion.

POPULATION, RURAL. See AGRICULTURE.

PORTLAND (ORE.). See BUILDING.

PORTLAND CEMENT. See CEMENT.

PORTO RICO. POPULATION. The Thirteenth Census, taken in 1910, showed a population of 1,118,012, as compared with 953,233 in 1900. The principal cities with their popula-

tions in 1910 are as follows: San Juan, 48,716; Ponce, 25,005; Mayagüez, 16,563; Caguas, 10,354; Arecibo, 9612; Aguadilla, 6315.

AGRICULTURE. Conditions during the fiscal year 1911 were generally favorable in agricultural pursuits, and the output of all products except coffee was increased in a marked degree. The acreage under cultivation was largely extended throughout the island, and greater attention was given to the scientific study of agriculture and the methods of farming. There has been great advance in the industrial activity of the territory since the tariff barriers between the mainland and the island were removed in 1911. In that year the exports of sugar were less than 70,000 tons. In 1910 they were nearly 285,000 and in 1911 323,000. The exports of cigars were fourteen times greater in 1911 than in 1901. In the former year they reached a total of \$174,000,000. The coffee industry showed improved conditions in 1911, the result of improved conditions in the market, which nearly doubled the average value of the product. While the quantity exported was less than that shipped during the previous year, the price received was greater. The production of fruit for external markets has become an important industry. In 1911 the shipments of fruits were valued at over \$2,000,000. These included oranges, pineapples, and grapefruit. The production of coconuts has increased year by year, and owing to the fact that the trees thrive in otherwise waste sandy soil along the coast, it has received more and more attention as agricultural lands advance in value. The industries mentioned comprise the leading agricultural activity of the island.

COMMERCE. The imports during the fiscal year 1911 amounted to \$38,786,907, as compared with \$30,634,855 in 1910. The exports were valued at \$39,918,367, compared with \$37,960,219 in 1910. Of the imports, \$34,671,958 were received from the United States, and of the exports, \$34,760,409 were sent to the United States. The imports showed a large increase in the purchases of all classes of manufactured articles, and the breadstuffs imported, not including rice, were valued at \$2,392,863, representing an increase of \$112,819. Imports of iron and steel were valued at \$4,977,146, an increase of \$1,666,611. Canned and preserved meats and dairy products were imported to the value of \$3,564,137, and cotton clothing, textiles, and other manufactures of cotton, \$5,132,693. Increases were shown also in the imports of boots and shoes and other manufactures of leather. The rice imported was valued at \$3,866,986, an increase in quantity of over 9,000,000 pounds. Rice is the staple food of the laboring classes in Porto Rico.

Of the exports, sugar was the most valuable, the amount exported in 1911 being 322,919 tons, valued at \$24,439,346, compared with a value for the exports in 1910 of \$23,545,922. This was the largest quantity of sugar ever exported from Porto Rico. The exports of manufactured and unmanufactured tobacco were valued at \$6,910,006. Of these cigars made up \$5,355,233, and leaf and wrappers, \$1,554,783. There were exported in the fiscal year 33,937,021 pounds of coffee, compared with 45,209,792 pounds in 1911.

COMMUNICATIONS. There were at the end of the fiscal year 1911 983.5 kilometers of insular railways in maintenance. During the year 200 kilometers were added to the extent of the railroads. The rapid increase in the number

of high-power automobiles used in the Territory augments the difficulty of keeping the roads in good repair. The employment of convict labor upon the insular highways has proved to be a successful experiment.

HARBORS AND DOCKS. There is great need of increased shipping accommodations in the harbors of Porto Rico. Dredging done by means of federal funds has provided a depth of 25 feet in a portion of the inner harbor and of 30 feet at the entrance to the port of San Juan. There is still a considerable area that must be dredged before suitable accommodations will be available for vessels which now enter and for those which cannot now enter. It is anticipated that on the opening of the Panama route, San Juan will become one of the busiest ports of America. There is need of improvement also at the ports of Mayagüez, Aguadilla, Arecibo, and Guayanilla.

IRRIGATION. The plan for irrigating the dry zone between the foothills and the southern coast, extending from the Patillas River on the east to the Jacaguas River on the west, a strip of land approximately 40 miles in length and averaging two miles in width, received special attention during the year. The territory comprised within this project contains about 30,000 acres of land which, with sufficient water supply, will be the most valuable in the island for agricultural purposes. Conditions compelled a complete reorganization of the work during the year and this caused delay in its progress. It is estimated that the principal features of the system will be completed so that water may be furnished during 1913.

EDUCATION. The total enrollment of pupils in the public schools in 1911 was 145,525, compared with 121,453 in 1910. During the year 17 new school buildings were acquired, making the total number now in use, 1042, equally distributed throughout all parts of the island. A large number of schools were equipped with courses of instruction in agriculture, manual training, cooking, sewing, and other practical subjects, and attention was devoted to hygiene, physical culture, and military training, and remarkable interest is shown in the night schools. There was during the year an increase of 75 per cent. in the attendance of these schools, bringing the total enrollment up to 15,138. The total enrollment in the University of Porto Rico at the end of the fiscal year was 1919. In the normal department, notable progress was made in manual training and domestic science courses. Especial attention was devoted to the department of agriculture during the year. A department of liberal arts was established in the university, in which is offered a two-years' course, qualifying the students for the proper certificate.

The expenditures for education during the year amounted for administration to \$43,029; for public and high schools, \$804,899; for the University of Porto Rico, \$61,418; for scholarships in the United States and Porto Rico, \$25,304, and for miscellaneous purposes, \$767; in all, \$935,418.

HEALTH AND SANITATION. Special attention was directed during the year to the suppression of occasional local epidemics of typhoid fever, chickenpox, and other infectious diseases. Food inspectors exercised a supervision over the manufacture and sale of food and drugs, and condemned and destroyed 194,000 pounds of

adulterated or decomposed articles of food intended for human consumption and 50,000 bottles of misbranded wines and liquors.

There were during the year 37,692 births, or 249 more than during the previous year. The birthrate per thousand reached 33.71. The deaths numbered 20,579, or 23.5 per thousand inhabitants.

A campaign against the hookworm disease was carried on during the year. Dispensaries for special treatment of this disease were maintained in 45 different places in the island, and there were admitted for treatment for the first time 22,810 patients, which, together with the 6418 old patients, brought the number during the year up to 29,228. Of these 6629 were cured, 6193 practically cured, and 10,292 were under treatment at the end of the year, while in the case of 6103 treatment was discontinued. There were 11 deaths from this cause during the year.

CHARITIES AND CORRECTIONS. The charitable institutions of the island in 1911 included the insane asylum, with 334 patients, the Asylum for the Blind, 79 patients, Leper Colony, 25 patients, Girls' Charity School, 152 inmates, Boys' Charity School, 150 inmates. In the penal institutions of the island there were confined during the year 8032 prisoners.

FINANCE. The receipts from all sources during the year aggregated \$6,813,575, or \$1,417,607 more than in 1910. Internal revenue receipts amounted to \$2,571,450. The assessed value of property in the Territory is \$133,282,453. There was a cash balance available for expenditures at the end of the fiscal year of \$1,214,000.

POLITICS AND GOVERNMENT

It was a quiet year politically in the history of the island. The legislature met and enacted a number of important measures. These are noted below. In July Secretary of War Dickinson visited the island, where he reviewed the troops and inspected military posts. There was no legislation enacted in Congress to alleviate the grievances of which Porto Ricans complained and measures were introduced to effect improved conditions. The chief criticisms are the lack of American citizenship, the prominence of the executive department, and the constitution of the Senate.

LEGISLATION. The first session of the Sixth Legislative Assembly convened January 9, 1911, and remained in session until March 9. There were enacted 79 acts and 14 joint resolutions. Perhaps the most important measures passed were those relating to public service corporations. These measures enlarged the powers of the Executive Council with regard to public service corporations in the Territory. It subjects all such corporations to the control of the Executive Council and makes it the duty of the attorney-general to institute criminal proceedings in the courts and gives the latter power to enforce the orders of the Executive Council when necessary. Several other measures relating to corporations were enacted. Other legislation of importance related to the agricultural interests of the island. These embraced two acts and one joint resolution, affecting the irrigation project mentioned above. Measures were passed amending the Criminal procedure.

OFFICERS. During the year several changes were made among the officers of the Territory. On June 13, 1911, J. W. Bonner was appointed

auditor to succeed A. P. Sawyer, resigned, and on February 23 M. Drew Carrel was appointed secretary. The officers at the end of the year were as follows: Governor, George R. Colton; Secretary, M. Drew Carrel; Treasurer, Samuel D. Gromer; Commissioner of the Interior, John A. Wilson; Attorney-General, Foster V. Brown.

PORTUGAL. A republic on the western coast of the Iberian peninsula (previous to October 5, 1910, a constitutional monarchy). Capital, Lisbon.

AREA, POPULATION, ETC. Total area, 35,582 sq. miles (including the Azores, 922, and the Madeira Islands, 314). Population (1900), 5,423,132 (estimate 1907, 5,668,954). Marriages (1909), 34,150 (1908, 34,135); births, 176,707 (177,231); deaths, 111,395 (116,430); emigrants (1908), 40,056. Lisbon had (1900) 356,009 inhabitants; Oporto, 167,995; Braga, 24,202; Setúbal, 22,074.

Primary education is free and nominally compulsory; but in fact few of the children of the people attend school. The percentage of illiteracy was, in 1900, 75.1 of the population above the age of six. Roman Catholicism was formerly the national religion; but a bill passed by the provisional government early in 1911 provides for the separation of church and state, the cessation (from July 1, 1911), of state expenditure for worship, the financial restriction of religious congregations, and free public observance (between sunrise and sunset) of all creeds.

PRODUCTION. Notwithstanding the excellence of soil and climate, more than 43 per cent. of the total area is barren. Crops cover 26.2 per cent.; vines, 3.5; fruit trees, 3.9; forest, 17.3. Although three-fifths of the population are engaged in agriculture, it is necessary, excepting in the event of extraordinary crops, to import foodstuffs in considerable quantities. Wheat, corn, and rye are raised, besides fruits and vegetables. Olive-oil production in 1909 is (unofficially) reported at 7,906,859 gallons, against 10,411,136 gallons in 1908.

BUREAU OF AGRICULTURAL STATISTICS. A decree issued March 29, 1911, by the government, provides for the compilation of annual agricultural statistics by a bureau especially formed under the control of the Direcção Geral da Estatística, pending the establishment finally of a permanent bureau whose duties shall include the compilation and publication of agricultural and other statistics, the taking of a decennial census, and the making of a general inquiry into the economic condition of the country.

Persons engaged in the mines in 1909, 7753. Output (1909): 74,419 metric tons of sulphur ore, 673 of wolfram, 197,979 of cupreous iron pyrites, 3037 of copper precipitate, 12,337 of cupreous pyrites, 1420 of arsenic, 2325 of silver ore, 736 of lead ore, 18 of tin ore; value of gold mined, 17,420 milreis. Salt, gypsum, lime, and marble are worked. The sardine and cork industries are important.

Persons engaged in the fisheries, 29,513; vessels, 12,621, of 41,331 tons; besides 987 persons and 31 vessels (6746 tons) in the cod fisheries. Value of products in 1909, 5,678,480 milreis (sardines, 2,535,153 milreis, tunny-fish, 470,764); besides 439,019 milreis from the cod fisheries and 14,437 from the Azores whale fisheries.

COMMERCE. Below is shown the trade by great classes, with totals for two years, in milreis (a, raw materials; b, provisions; c, yarns and textiles; d, machinery and implements; e, live

animals; f, various manufactures; g, tare. C & B=coin and bullion.):

	Imports		Exports	
	1908	1909	1908	1909
a	26,125,938	26,627,261	6,555,276	6,851,123
b	20,005,462	18,662,491	14,500,184	15,463,428
c	6,631,595	6,582,358	1,195,101	2,177,804
d	5,673,920	4,696,160	119,163	149,146
e	3,415,671	2,859,401	4,051,482	4,142,466
f	5,289,560	5,210,634	2,041,088	2,186,122
g	114,837	123,559	.....	.....
	67,257,083	64,751,864	28,462,294	30,970,088
C & B..	292,898	1,895,497	1,605,918	919,661
Total	67,549,981	66,647,361	30,068,212	31,889,749

Colonial products, not included in above table, were reexported to the value of 10,701,421 milreis (cacao, 7,071,931; rubber, 3,064,825) in 1908, and 12,300,286 milreis (cacao, 7,168,019; rubber, 3,958,863) in 1909.

The principal articles of export in 1910 (total trade not available) were wine, 12,416,000 milreis; cork, 4,518,000; live animals, 3,534,000; cotton yarn, etc., 2,645,000; fish, 2,604,000; southern fruits, 1,645,000; copper, 943,000; timber, 909,000; olive-oil, 702,000. The wine export in 1909 (9,356,669 milreis) was divided into Oporto, 5,040,348 milreis; *vin ordinaire*, 3,655,017; madeira, 401,474; liqueurs, 169,830. The principal countries of origin and destination are, in the order of their import importance, Great Britain, Germany, France, United States, Spain, Belgium, Brazil, the Portuguese colonies, etc.

Vessels entered (1909), 10,794, of 20,001,858 tons. Merchant marine (1911): 66 steamers, of 70,193 tons, and 259 sailing vessels, of 43,844.

COMMUNICATIONS. Miles of railway (December 31, 1909), 1758 (state, 672); of telegraph lines (1907), 5860; wires, 13,290; telegraph offices, 576, post offices (1909), 3861.

FINANCE. The milreis (worth \$1.08) is the monetary unit. The following table shows revenue and expenditure for three years, in milreis:

	1907-8	1908-9	1909-10
Revenue	71,039,000	70,169,000	69,262,336
Expenditure ...	77,121,000	75,275,000	74,605,880

The estimates for 1910-11 are reported as in the table below:

Rev.	1000 m.	Expend.	1000 m.
Indirect taxes ...	28,902	Debt	31,925
Direct taxes	14,207	Public Works	10,597
Rec. <i>d'ordre</i>	13,590	War	8,592
Stamps, etc.....	6,815	Interior	5,954
Domains, etc.....	5,184	Finance	4,894
Other taxes	1,037	Marine	3,997
		Civil list, etc....	2,646
		Justice, etc.....	1,384
		Colonies	1,180
		Various	1,597
Total ord.....	69,735		
Extraord.	1,069	Total ord.....	72,767
		Extraord.	732
Total	70,804	Total	73,499

The foreign debt stood, December 31, 1910, at 194,062,500 milreis; the internal, at 624,515,000 (floating debt, 88,900,000). The yearly excess of expenditure over income has added to the national debt.

NAVY. One armored coast-defense vessel (3200 tons); 5 protected small cruisers (aggregate, 11,-

266 tons); 19 gunboats (9093); one torpedo-boat destroyer (530); 4 torpedo boats (252) composed the navy in 1911, besides a schoolship, transports, river gunboats and obsolete gunboats. In construction: 2 torpedo-boat destroyers, 6 torpedo boats, 2 submarines, 1 service boat, 1 vedette. The personnel includes 420 officers and 5687 men.

ARMY. By enactment of the National Assembly an army to consist of active, reserve, and territorial forces was established in the new republic. Each citizen is liable for military service from his sixteenth to forty-fifth year, though until twenty years of age the instruction will be confined to simple gymnastics and rudimentary rifle practice. When twenty years of age each Portuguese will be held liable for ten years' service in the organization of the active army, with varying times of service with the colors. A second period of ten years will be spent within the reserves with supplemental training, and then the final period is served with the territorial militia, where eight days' training each year is provided. The recruiting of the army is secured by eight large recruiting areas in each of which there are an active division and two reserve infantry brigades, and the necessary formation for the territorial forces. Under the monarchy the army was maintained on a peace basis of about 30,000, which for war could be increased to about 100,000, including 53 militia. In 1911 there were 4 divisions of the active army, garrisons at Madeira and the Azores, and the reserves, while in the colonies an army of about 10,000 men was maintained. During the year there were partial mobilizations of the army. In consequence of monarchist disturbances, and of reports as to movements of conspirators on Spanish territory near the north frontier of Portugal, reservists were called out as a preventive measure. Considerable war material was also bought for the army, as the monarchist régime had left the army in an unprepared condition.

GOVERNMENT Upon the abolition of the constitutional hereditary monarchy, the republic was proclaimed October 5, 1910, and sanctioned by the constituent national assembly August 21, 1911. The executive is the president, elected for four years by congress, which exercises the legislative power and is composed of a chamber of deputies (164 members elected for three years by direct suffrage), and a senate (71 members, elected for six years). The president elected August 24, 1911, was Manoel de Arriaga. The ministry as constituted November 11, 1911, was as follows: premier and minister of foreign affairs, A. de Vasconcellos; interior, Silvestre Falco; justice, Antonio Macieira; finance, S. Paes; public works, E. de Vasconcellos; war, Col. Alb. Silveira; navy, C. de Almeida; colonies, Capt. Freitas Ribeiro.

HISTORY

DANGERS OF THE NEW GOVERNMENT. Early in the year Dom Miguel of Braganza, the pretender wrote that now that the situation had changed and the return of King Manuel was not to be thought of, the only recourse was to fall back on the old Miguelist dynasty. He added that if the country called him to the throne he would answer the call, but would take no extraordinary action to gain the throne if the country preferred to remain under the present régime. The chief

danger to the new republic, however, came on the one hand from the attempts to restore the deposed king, and on the other from the discontent of the extreme radical element, who were disappointed with what had been accomplished toward social reform. In February certain prominent monarchists who had held office under the old régime were notified that they must leave Portuguese territory within three days. A manifesto was issued by a monarchist officer, Captain Couceiro, declaring that after six months of republican rule economic conditions had not improved and urging a truce between monarchist and republican factions for the purpose of taking a plebiscite of the country as to the form of government. On the publication of the manifesto Captain Couceiro was dismissed from the service. He was subsequently active in organizing monarchist plots. In March a monarchist conspiracy was discovered at Lamego and seven soldiers were imprisoned. In April there were fears of monarchist reprisals in the north and on the border. In the early summer there were frequent alarms at the danger of royalist raids from Spain, whither the émigrés had taken refuge, and where Captain Couceiro was believed to be organizing a military movement. In June and July there were alternating reports that royalists were on the point of invasion, and that their plots had wholly failed. Many persons were arrested on suspicion, and troops were concentrated to meet an invasion from Galicia. The Spanish government, however, gave assurances that no hostile movement would be permitted on Spanish soil, and that the Portuguese monarchists would be expelled; whereupon the minister of war recalled the reserves. Nevertheless, the rumors of a royalist uprising persisted during August, and the government kept the frontier strongly garrisoned. These fears were realized on September 30, when an anti-republican revolt occurred at Oporto and Villa Nova, but the troops were faithful to the government and the movement was checked without serious loss. Later it was reported that the people had risen for the monarchy in the commune of Santo Tirso and that the royalists were about to cross the frontier from Spain. The long-threatened royalist raid finally occurred on October 5, when a column of 700 monarchists crossed the frontier into the Braganza district, where they occupied several towns and were reinforced by about 3000 men. Another monarchist force, estimated at 2000, was gathered at Vinhães, under Captain Couceiro. Within a few days it was reported that the Vinhães force had been dispersed and that many of the royalists had recrossed the border and were taking refuge in the hills. It was believed that the expedition had failed to arouse any special enthusiasm among the people and that further attempts could easily be checked. It was reported that on October 17 the monarchists had captured the frontier town of Montalegre, inflicting a loss of sixteen men on the government's forces, and that Captain Couceiro's forces had made a triumphal entry into the town. Later reports, however, indicated the suppression of the movement, which appeared to be less important than was at first supposed, and to have been undertaken, not on behalf of King Manuel, but of Dom Miguel, the pretender. The alarm of the government continued, however, and many monarchist plots were discovered or suspected.

Six hundred arrests were reported and Parliament was summoned in special session to pass a measure providing for a special court to try monarchist conspirators. There was also much alarm over industrial and Socialist agitation during the year. The year began with the threat of a serious and prolonged railway strike. This was declared on January 10, and the number of men was estimated at 7000. A cabinet crisis was threatened on account of the resignation of Senhor de Almeida, minister of the interior. He was favored by the strikers and the government was informed that the strike would end if Senhor de Almeida resumed his office. This was arranged and a compromise was subsequently reached by which certain of the demands of the strikers were granted. The employees of the Lisbon Gas Company under radical influence went on strike and did a considerable amount of damage before they were scattered by the troops. Other strikes occurred during the year at Setúbal, Lisbon, and elsewhere, some of them leading to riots.

SEPARATION OF CHURCH AND STATE. As to the policy toward the church, the Portuguese minister for foreign affairs announced in February that all religions should be free, that schools in which creeds could be taught would be permitted, and that any property belonging to foreign religious bodies that had temporarily been seized by the government would be restored or an indemnity would be paid. A sharp issue arose between the provisional government and the clergy, owing to the publication of a pastoral letter by several of the bishops criticising the ministry. The government ordered the priests not to read the letter and most of them obeyed. Those who read it were imprisoned and threatened with the loss of their living. The government's energetic measures obliged most of the bishops to give orders that the letter should not be read. The bishop of Oporto, however, who insisted on ordering his priests to read the letter, was summoned before the minister of justice and after he had boldly defended his position was deprived of his post. The church condemned the course of the government in the separation of church and state as placing the Portuguese clergy in an abject position, since not only the present, but future possessions were appropriated and the state would have control over the administration of canonical rights. Moreover, the law invited priests to marry and provided pensions for their widows and children, thus attacking ecclesiastical discipline; and the bishops and clergy were left at the mercy of the laity.

The Church Separation law, which was ready for promulgation at the end of April, provided that the Catholic church should cease to be the religion of the state and that it should be henceforth maintained by the offerings of its members, the state assuming control of all property belonging to the churches and the congregations. The accounts of the church are to be under fiscal supervision. Churches and the property necessary for religious worship would be ceded to the clergy, and the Portuguese and foreign priesthood were to continue to exercise their functions as before. Each holder of a benefice on July 1, 1911, was to receive the same stipend from the state. New appointments were to require the consent of the government. Religious property belonging to private individuals would be respected. The state will not oppose the mar-

riage of priests. One provision of the law forbade members of seminaries to walk about the streets in their clerical vestments. The great mass of clergy and bishops agreed not to accept the government stipends, but to insist that the church have the same rights in Portugal as in the United States, Switzerland, and Brazil.

The papal encyclical *Jamdudum*, dated March 21, deplored the anti-religious acts of the republic, namely the law of separation, the expulsion of the orders, the suppression of public festivals, the introduction of divorce, the abolition of the religious oath and of religious instruction in the schools. It also lamented specifically the dismissal of the bishops of Beja and Oporto. It declared that the separation law not only despoiled the church of the means of subsistence, but forbade it to acquire such means in the future and denied the common liberties of subjects to the church and to Catholics. It condemned the law and pronounced it void. It was believed, however, that in spite of the bishops' orders, two-thirds of the minor clergy would accept the government stipend. It was estimated that the government securities held by the clergy, and to be confiscated, amounted to \$25,000,000, consisting chiefly of legacies to the church. Despite the government's offers, the clergy continued to refuse its financial aid. Toward the close of the year a deputy proposed to sever diplomatic relations with Rome, but the Chamber rejected the motion.

ESTABLISHMENT OF CONSTITUTIONAL GOVERNMENT. Among the many serious tasks before the provisional government of the new republic were the drafting of the constitution and the framing of an electoral law. The latter was published in February. It bestowed the suffrage on all males 21 years of age and over who are fathers of families and can read and write, with certain specific exceptions, as, for example, soldiers, bankrupts, ex-convicts, etc. The elections to the new constitutional republican chamber took place quietly on May 28. There were no monarchist candidates, and it was too soon for differences to develop among the republicans. On June 19, the republican constitutional chamber was opened, and unanimously approved the decree declaring the abolition of the monarchy, and the banishment of the Braganza dynasty. The president read the decree to the people from the balcony, thus formally proclaiming the new republic. The constitution was read to the chamber on July 3. It provided for two chambers, of which one should be composed of members elected by the people, and the second, or upper chamber, of members chosen by the municipalities; a president to be elected for four years by both chambers, but not to be reelected; the ministers to be chosen by him, but responsible to Parliament. On August 20 the draft of the constitution was adopted and on August 24 Dr. Manoel de Arriaga was elected president of the republic by 121 votes against 86. Dr. Arriaga, well known as a journalistic orator, was the candidate of the Moderates and Independents, who united against the radical candidate, Dr. Machado, minister of foreign affairs in the provisional government. The first cabinet was announced at the beginning of September. Its chief was Senhor Chagas, who was also minister of the interior. The new republic was recognized by the United States after the meeting of the chamber in June, and by the other powers after the announcement of the cabinet in September.

In the autumn, dissensions arose in the Republican *bloc*. Dr. Almeida, leader of the principal group in the *bloc*, decided to withdraw his support from the government, and as this deprived the ministry of a majority, the premier resigned (November 8). A new cabinet was formed under Senhor Vasconcellos, who took the portfolio of foreign affairs. Concerning the question of native labor in the African colonies, see SÃO THOMÉ AND PRÍNCIPE.

PORTUGUESE EAST AFRICA, or MOZAMBIQUE. A Portuguese colony. Estimated area, 293,860 sq. miles; population, 3,120,000. Capital, Lorenzo Marques (10,000 inhabitants). The trade of the state territories in 1909 was 5,178,000 milreis imports, 5,433,000 exports, 4,305,000 reexports, 27,008,000 transit; of the Mozambique Company, 1,669,000 imports, 1,900,000 exports, 4,366,000 reexports, 3,950,000 transit; of the Nyassa Company, 490,000 imports, 434,000 exports, 80,000 reexports. Railways in the colony, about 300 miles. Revenue (1910-11), 5,418,332 milreis; expenditure, 5,118,832. Dr. J. F. de Acededo Silva was high commissioner in 1911.

PORTUGUESE GUINEA. A Portuguese African colony, of about 13,940 sq. miles area and with 820,00 inhabitants. Bijagoz and Bolama belong to the colony, and the town of Bolama is the capital. The imports in 1905 were valued at 857,155 milreis and the exports at 492,238. Revenue (1910-11) and expenditure balanced at 309,900 milreis. Lieut. C. A. Pereira was governor in 1911.

POSEN. See BATTLESHIPS.

POST, PARCELS. See PARCELS POST.

POSTAL REFORM LEAGUE. See PARCELS POST.

POSTAL SAVINGS BANKS. According to a statement of Postmaster-General Hitchcock the number of post offices in the United States

authorized to receive savings deposits was 5185 at the close of the year. He stated that preparations were being made to establish the system in about forty thousand fourth-class offices that do a money-order business. Deposits at post offices are receipted for by certificates of deposit, accounts being kept at the individual offices. This differs from the universal practice of other countries whereby deposits are entered in pass books and a ledger account for each depositor is kept at the central office. The latter system is more expensive. The deposits amounted to only \$80,252 at the end of the first month, January, 1911; by the end of June they amounted to nearly \$700,000, and by the end of the year to \$15,000,000. The Postmaster-General predicted that with the great increase in number of depositing offices the total by the end of 1912 would be not less than \$40,000,000.

The law permits the depositor to exchange his deposits for United States 2½ per cent. bonds in denominations of \$20, \$40, \$60, \$80, \$100, or multiple thereof, and \$500 or multiple thereof. The first issue of these postal savings bonds was made on July 1, 1911, the amount being \$41,000. Of these 85 per cent. were in the registered form, indicating the intention of the depositor to retain them as a permanent investment. The second issue of these bonds amounted to \$416,920, of which about 75 per cent. were in the registered class.

The deposits are transferred to approved national and State banks, of which about 6000 had been authorized at the end of the year. The deposits are protected by bonds deposited with the treasurer of the United States.

Following is a table compiled by the Bureau of Statistics showing growth of postal savings banks in foreign countries. See also SAVINGS BANKS.

Country.	Year	No. of de- positors	Deposits	Year	Number of depositors	Deposits	Av. de- posits
Austria	1899	1,415,348	\$ 26,877,778	1909	2,143,611	\$ 45,871,080	\$ 21.26
Belgium	1899	1,289,659	88,619,241	1909	2,290,114	148,791,369	64.97
Bulgaria	1899	40,867	822,249	1909	252,920	8,198,774	32.42
Finland	1899	35,347	5,983,822	1909	56,367	1,371,573	24.33
France	1899	3,319,938	179,384,676	1909	5,642,888	316,456,866	57.09
Hungary	1899	364,775	5,983,628	1909	727,146	20,006,523	27.51
Italy	1900	3,990,983	181,652,255	1910	5,160,008	324,279,617	62.84
Netherlands	1900	829,131	34,048,200	1910	1,510,033	64,436,982	42.67
Russia	1898	653,470	42,800,963	1908	1,934,034	138,393,695	71.56
Sweden	1899	556,544	16,062,354	1909	555,487	12,167,925	21.91
United Kingdom	1900	8,439,983	659,652,347	1910	11,832,176	821,904,231	69.46
Bahamas	1899	1,240	63,600	1909	2,179	139,391	63.97
Canada	1901	157,368	39,950,813	1911	147,478	48,017,587	291.69
British Guiana	1899	7,853	212,252	1909	14,881	434,447	29.19
Dutch Guiana	1904	4,967	205,876	1908	8,039	268,532	33.40
Curaçao	1905	1,406	13,741	1907	3,259	52,143	16.04
British India	1899	783,559	35,010,256	1909	1,318,632	49,424,157	37.48
Ceylon	1899	43,850	378,959	1909	79,704	794,077	9.96
Straits Settlements	1899	2,404	204,031	1909	4,267	380,982	89.29
Federated Malay States	1904	2,477	146,002	1909	4,536	278,490	61.40
Dutch East Indies	1899	17,010	836,710	1909	71,214	3,073,705	43.16
Japan	1901	1,979,640	11,934,788	1911	11,236,637	81,120,201	7.22
Formosa	1900	22,520	278,372	1910	90,893	946,549	10.41
Cape of Good Hope	1899	62,356	8,440,652	1909	101,203	9,949,759	98.31
Gold Coast	1899	458	24,186	1909	2,165	120,276	55.55
Orange Free State	1899	904	33,506	1909	6,831	753,797	110.35
Rhodesia	1905	811	108,528	1909	2,516	321,869	127.73
Sierra Leone	1899	3,581	232,765	1909	6,107	406,995	66.54
Transvaal	1899	9,945	345,312	1909	61,569	7,675,702	124.67
Egypt	1901	7,149	187,834	1910	104,100	2,254,008	21.65
Tunis	1899	3,097	511,179	1909	5,628	1,122,230	217.19
New South Wales	1899	179,526	26,692,923	1909	334,381	64,741,127	193.61
Victoria	1900	375,070	44,337,674	1911	595,424	84,040,073	141.14
Queensland	1899	76,011	15,431,901	1909	106,627	25,102,473	235.42
Tasmania	1899	12,710	1,208,717	1909	21,491	2,993,131	139.28
Western Australia	1899	29,371	5,431,880	1909	77,748	14,890,215	191.52
New Zealand	1899	183,046	25,891,585	1909	359,714	61,643,459	171.37
Philippine Islands	1907	2,676	255,050	1911	28,239	2,032,014	71.96

POST OFFICE. See UNITED STATES.

POTASH. See FERTILIZERS.

POTATOES. In many of the more important potato-growing countries of the world the crop of 1911 was threatened with low production, if not failure, by a late and cold spring and by a dry and hot summer. The weather during the latter part of the season, however, was so favorable that a much better yield than was at first anticipated was finally secured. No accurate statistics regarding the world's production are available, but the world's crop is estimated at about five and one-half billion bushels. Germany and Russia, in spite of poor prospects early in the season, were again the leading countries in 1911. Germany produced in 1911 1,263,023,607 bushels on 8,207,375 acres, against 1,597,173,727 bushels on 8,144,957 acres in 1910. The average yield per acre was 196.13 bushels and 153.90 bushels for 1910 and 1911 respectively. Russia produced 1,166,323,000 bushels in 1911 and 1,333,312,000 bushels in 1910. In Great Britain, France, and Ireland the crop of 1911 was larger than the crop of the preceding year. Great Britain produced 142,994,805 bushels on 571,808 acres in 1911 and 129,813,100 bushels on 539,684 acres in 1910. The French crop of 1911 amounted to 423,573,500 bushels and the crop of 1910 to 308,885,000 bushels, the acreage for the two years being 3,837,463 and 3,765,804 respectively. Ireland produced in the year 137,942,000 bushels, as compared with 107,178,000 bushels the previous year. The Canadian yield for 1911 was 66,023,000, being about 8 million bushels less than in 1910 and about 33 million bushels less than in 1909. In the United States the dry weather of the season prevented the proper development of the early planted crop. Late plantings were more successful, but in many sections continued rains later in the summer proved deleterious. A late open fall favored the late planted crops. The total production reached 292,737,000 bushels, as compared with 349,032,000 bushels in 1910. The crop of 1911 was exceeded five times and was about 10 per cent. below the five-year average. Based on the farm value per bushel of 79.9 cents on December 1, 1911, the value of the crop was \$233,778,000, or over \$27,000,000 greater than the previous record value in 1909. The average yield was only 80.9 bushels per acre, as compared with 93.8 bushels in 1910 and 106.1 bushels in 1909. The production of the leading potato-growing States was as follows: Wisconsin, 32,480,000 bushels; Michigan, 31,020,000 bushels; New York, 27,750,000 bushels; Minnesota, 25,875,000 bushels, and Maine, 21,240,000 bushels. New York ranked first in acreage, with 375,000 acres, being followed by Michigan, with 330,000 acres, Wisconsin with 280,000 acres, Pennsylvania with 270,000 acres, and Minnesota with 225,000 acres. The highest average yield, 180 bushels per acre, was secured in Idaho and Maine. According to data gathered by the United States Department of Agriculture during the year the average cost of production was 24.6 cents per bushel.

In Germany the practice of drying potatoes and grinding them into meal for use in place of wheat flour has become widely established. During the past year 436 plants were in operation and the output of dried potatoes was 150,000 tons. The meal produced is practically finely ground and sifted potato starch and costs about 2 cents per pound. It is used in bread-

making and bakers mix from 10 to 15 per cent. with wheat flour and about 15 per cent. with rye flour.

POULSON, NILS. An American ironmaster and philanthropist, died May 3, 1911. He was born at Horsens, Denmark, in 1843 and was educated in Copenhagen as an architect and builder. He came to the United States in 1864 and after working for a time as a mason secured a position in the supervising architect's office in the government in Washington. He remained in that position for two years and then was employed by the New York Architectural Iron Works, where he had charge of the architectural and engineering department. In 1876 he went into business for himself with Charles M. Eger. In 1897 the firm was incorporated as the Hecla Iron Works and Mr. Poulson was made president. He had always shown a great interest in the welfare of the employees and one of the phases of the business to which he gave his attention was a series of evening classes. This resulted in improving the standard of the work of the company and also in fitting many of the men to start in business for themselves. In 1910 he gave \$100,000 for the establishment of educational relations between the United States and the Scandinavian countries. Scholarships for Scandinavian students were established at the Massachusetts Institute of Technology, and at Yale, Harvard, and Columbia universities.

POULTRY. See AGRICULTURE.

POVERTY. See CHARITIES, and CHILD LABOR.

POWDER TRUST. See TRUSTS, and DELAWARE.

POWER TRANSMISSION. See TRANSMISSION OF ELECTRIC POWER.

PRAGMATISM. See PHILOSOPHY.

PRESBYTERIAN CHURCH IN THE UNITED STATES. Often called the Southern Presbyterian Church. This denomination, which has its strength almost entirely in the South, numbered in 1911 286,174 communicants, 1694 ministers, and 3224 churches. In the Sunday schools of the denomination were 224,497 scholars. There are 14 synods and 83 presbyteries. The denomination sustains home and foreign missions and contributes liberally to educational purposes and to evangelical work among the negroes. The total contributions to all causes is about \$3,500,000 annually. The general assembly of the denomination was held in Louisville, Ky., May 18, 1911.

PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA. This division of the Presbyterian church is known as the northern branch, in distinction from the Presbyterian church in the United States, called the Southern Presbyterian Church. In 1911 the communicants of the Presbyterian Church in the United States of America numbered 1,354,453, the ministers 9128, and the churches 10,051. The denomination is divided into 37 synods and 297 presbyteries. In the Sunday schools of the denomination were 1,205,030 Sunday school scholars. There was contributed for all purposes throughout the year \$25,909,336, divided as follows: Home missions, \$1,668,859; foreign missions, \$2,488,477; educational work, \$157,162; Sunday-school work, \$193,278; for the erection of churches, \$189,660; for the support of colleges, \$832,520; for congregational purposes, \$17,969,150, and for miscellaneous

ous purposes, \$1,781,336. The missionary work of the church is carried on by the board of home missions, which has control of domestic missions, and by the board of foreign missions, which conducts the work in foreign countries. There were 26 missions in 1911, 144 stations, and 1030 missionaries. The communicants in the missions numbered 114,166 and the pupils in the Sunday schools numbered 152,057. Other boards for carrying on church work are the board of publication and Sabbath-school work, board of church erection, board of relief, board of missions for freedmen, college board and the permanent committee on temperance. The denomination holds annually a general assembly. This was held in May, 1911, at Atlantic City. The most important acts of the assembly were as follows:

The World Conference of Christian Churches on Faith and Order was approved. The plan of union with the Reformed Church in the United States was adopted. A plan of vacancy and supply was sent down to the presbyteries for consideration. Training schools for lay workers were approved. Churches in all communities were asked to unite with other denominations in coöperative Christian work. Members were warned to have no part in the liquor traffic. The only terms of church membership were declared to be a profession of faith in Jesus Christ, and of obedience to Him, to be followed by baptism. Ministers were admonished to refrain from utterances which unsettled the church. The Rev. William D. Grant was suspended from the ministry for departures from the doctrinal standards.

Missionary committees were recommended to be constituted in each congregation. A further examination in writing of candidates in theology was authorized when verbal examination was unsatisfactory to one-fourth of the presbytery. The authority of superior judicatories in the Presbyterian system of government over congregations was reaffirmed. A committee was appointed to take part in the coming centennial of Princeton Theological Seminary. A basis of coöperation with other denominations in home missions was adopted, and it was recommended that the work among the colored people be unified. A movement to raise \$100,000 for the Waldensian church was approved. The faithfulness of presbyteries in complying with the deliverances of the assembly, as to approved schools for students for the ministry, was approved.

A heresy trial of unusual interest was held before the permanent judicial commission of the general assembly. The case was that of Rev. William D. Grant. The Judicial Commission of the Presbytery of Northumberland had acquitted Dr. Grant of certain heresy charges. These included allegations that he had failed to ascribe to Christ attributes which belonged to Him as the Son of God, and that he impugned the veracity of the Scriptures of the Old and New Testament and divested them of authority. The commission of the assembly reversed the findings of the presbyterial commission and found Dr. Grant guilty, with a sentence that he be suspended from the functions of his office until he should satisfy the Presbytery of Northumberland that he had renounced the errors of which he had been convicted. The report was affirmed by the general assembly.

Negotiations were carried on during the year

for a plan of union between the Presbyterian and Reformed German churches. For an account of litigation with the Cumberland Presbyterian church during the year, see CUMBERLAND PRESBYTERIAN CHURCH.

The officers of the general assembly in 1911 were as follows: Moderator, Rev. John F. Carson, D. D.; vice-moderator, Rev. Hugh H. Hanna; stated clerk, Rev. William Henry Roberts, D. D.; permanent clerk, Rev. William Brown Noble, D. D.; assistant clerk, Rev. James M. Hubert, D. D.

PRESIDENTIAL PRIMARIES. See ELECTORAL REFORM.

PREVENTION OF CRIME. See PENOLOGY.

PREVENTION OF FIRES. See FIRE PROTECTION.

PRIBILOF SEAL FISHERIES. See FISH AND FISHERIES.

PRICES. The very high level of commodity prices in recent years has been the occasion of world-wide discussion as well as considerable disturbance in industry. The general level of prices in 1911 was slightly lower than during the preceding year, but higher than during any year preceding 1910. *Bradstreet's* index number, which is based on the per pound prices of 96 articles on the first of each month, stood at 8.8361 January 1. The indexes for the succeeding months were as follows: February, 8.7602; March, 8.6929; April, 8.5223; May, 8.4586; June, 8.5294; July, 8.5935; August, 8.6568; September, 8.8191; October, 8.8065; November, 8.8922; December, 8.9824. The index for December was the highest since May, 1910, and in several decades has been exceeded only in December, 1909, and the first five months of 1910. The index for December was 17 per cent. higher than ten years earlier; it was slightly more than 50 per cent. higher than the low point of 1896. Of the 96 articles 47 showed advances during the year, 43 showed declines, and 16 remained unchanged. Among the articles showing increases in prices were cereals, fresh meats, milk, butter, sugar, coffee, tea, potatoes, and leather. Among those showing decreases were cured meats, fish, apples, cotton, cotton sheeting, pig iron, coal, rubber, and tobacco.

The level of English prices is indicated by Sauerbeck's index, which is based on 45 commodities. The average of these indexes for the years 1900-10 was 73. In 1907, 80; 1908, 73; 1909, 74; 1910, 78; in March 1911, 78.9; June, 80; July, 78.9; August, 79.5; September, 80.3; October, 80.7; November, 80.6. While higher prices caused an appreciable cessation of demand in Great Britain there were no serious popular outbreaks resulting.

FOOD RIOTS. On the continent, however, high prices caused numerous demonstrations, often accompanied by rioting and the destruction of property. In Germany there was an increase in all prices except those of animal products, the increase in home agricultural products being from an index of 109.3 to 153.3. The chief cause of this advance was said to be the very dry summer. The Prussian ministry in Germany reduced by one-half the rates for the transportation of potatoes, vegetables, corn, and fodder. They also formulated a plan whereby food products might be distributed to the poor at or even below cost. In Berlin the municipal authorities organized ten public markets for

the sale of fresh fish. In October and November there was much discussion of the problem in the Reichstag. Opponents of the protective system declared high prices to be due to the high tariff. The chancellor made a spirited defense of the existing fiscal system. He pointed out that Germany now supplies nearly all her meat, although the consumption per capita has risen almost to the English level. Similarly the per capita consumption of wheat has greatly increased in the last decade. He found that the protective system greatly strengthened the empire and should not be sacrificed to a passing demand for a reduction of prices. He declared that the Socialists were endeavoring to make political capital for the coming election.

In Vienna occurred the most serious of the food riots. There were outbreaks in many parts of the city on September 17, attended with considerable destruction of both public and private property, many injuries, and some bloodshed. Severely repressive measures were adopted by the police. The demonstration, however, was partly revolutionary in character. The real cause was not perfectly clear, one explanation being that the riots were fomented by Socialists; another that they were spontaneous protests of workmen against high food prices. Probably both factors entered. The demonstration was attended by 30,000 Socialists, together with some thousands of rowdies and hooligans. Immediately thereafter there were demonstrations in various parts of the country on account of the almost intolerable level of food prices. The government at once reduced by one-half the freight rates on potatoes, vegetables, corn, and fodder. In October the city council of Budapest decided to increase to threefold the capacity of the municipal bakery, to establish a public milk market, to build public abattoirs, and to convert vacant grounds into market gardens.

In September also occurred open-air demonstrations in Paris, lead by Socialists and the General Confederation of Labor. They raised the cry of "down with war and dear food." Meetings were held also in numerous cities in the north of France, in Brittany, and even in the southern part of the country. In many places, both large and small, the retail dealers were forced either to agree to sell at prices formulated by groups of house-wives or to close their shops. Among the causes assigned for the advance in prices were the tariff, the trusts, the existence of the foot-and-mouth disease among cattle, and the drouth, with its consequent bad crops. The council of ministers agreed to permit the communes to engage in coöperative butcher and bakery shops. Premier Caillaux also declared that the 1912 budget would include an appropriation for the establishment of butcher shops and bakeries, and for the erection of cheap lodgings. See FRANCE, *History*.

At the same time with disturbances at St. Quentin and neighboring cities in northern France occurred demonstrations in Belgian cities. Complaints were heard also from St. Petersburg, where all prices have advanced rapidly since 1900 and where the price of flour became almost intolerable.

THE BRITISH BOARD OF TRADE INQUIRY. An investigation has been carried on during several years by agents of the British Board of Trade as to wages and prices in Great Britain, Germany, France, and the United States. The

American investigation covered the following twenty-eight cities: New York, Boston, Brockton, Fall River, Lawrence, Lowell, Providence, Baltimore, Newark, Paterson, Philadelphia, Cincinnati, Cleveland, Detroit, Louisville, Muncie, Pittsburgh, Chicago, Duluth, Milwaukee, Minneapolis, St. Paul, St. Louis, Atlanta, Augusta, Birmingham, Memphis, New Orleans, and Savannah. Data were collected for the month of February, 1909, with reference to wages and hours as shown by the time-sheets of employers, rents as reported by real estate officers, and by a house-to-house canvas, food prices as reported by dealers, and food expenditures as estimated in 7616 family budgets. The occupations chosen for comparison were the building and engineering trades and printing. Two-thirds of the families studied had incomes of between ten and twenty-five dollars per week. The report also gave a very interesting and correct statement of the social and industrial conditions prevailing, not only in the towns studied but in the country as a whole. The wages, rents, food prices, and rent-and-food cost combined in New York City was taken as a base, the data for the other cities being stated in percentages of the New York figures. Thus the Middle West towns showed a wage index of 95 (that of New York being 100), rent index of 79, food prices 95, and rent-and-food combined (rent one-fourth, food three-fourths) 91, as compared with New York. Therefore these Middle West cities showed an approximate real wage of 104, the New York wage being 100. In all other groups of cities the real wages were found to be less than in New York; for New England the index was 85, for the other Eastern cities 95, for central cities 97, and for Southern cities 92.

As compared with the wages of skilled workmen in the selected occupations in England the wages of American workmen were found to be in the ratio of 230 to 100; the hours of labor in the ratio of 96 to 100; rents in ratio of 207 to 100; food prices, in ratio of 138 to 100. By combining the food and rent indexes, the cost of living index was found to be 152 in the United States to 100 in England. It should be noted, however, that this ratio of 152 to 100 probably exaggerates the advantage in favor of the American workman, since the data all dealt with skilled laborers who are relatively less numerous in the United States than in England. Among the distinctive characteristics of American industrial life which the report emphasized are the relatively high standard of living, the modifications due to the presence of many nationalities, and the tendency to employ unskilled labor with machinery in the processes where skilled labor is employed in Europe. The report also calls attention to the smaller percentage of total income which the American laborer spends for food, the larger annual consumption of meat, and larger expenditures for fruits and vegetables. It also finds that the American worker appears better dressed on the street, though American clothing is less durable and more costly than English. It notes that American bedrooms are not uncommonly heated in winter, and that ice and iced drinks are universal in summer. The report finds that many adaptations have been introduced into American industry in order to fit the capacities of a great mass of untrained immigrant workers. For this reason the comparison between the wages and the cost of living in the United States and

England, as based on a few highly skilled trades, is not believed to be typical of American conditions in general.

The similar comparisons made with France, Belgium, and Germany showed that wages there were lower and hours longer than in England, while cost of living is higher. In Germany the money wage per hour was estimated to be three-fourths the English wage, and the cost of rent, food, and fuel nearly one-fifth greater. In France the weekly money wage was found to be 75 per cent. of the English; the hours per week 117 per cent. as long; and the hourly wage only 64 per cent. But rent, food, and fuel were higher. In Belgium the weekly wage in the industries compared was 63 per cent., the hours per week 121 per cent., and the hourly wage 52 per cent. of the English. It was also reported that the cost of living was higher in Scotland and lower in Ireland than in England.

INTERNATIONAL COMMISSION. The fact that the rise in prices is world-wide and has caused serious social and economic disturbances in a number of countries was the basis of a proposition made by Prof. Irving Fisher of Yale University that there be created an international commission to inquire into the causes of the rise. At the annual meeting of the American Economic Association the proposal was approved by many members. It also received the approval of President Taft and other officials. Moreover, the proposition was favored by leading economists, financiers, and statesmen of Europe. The matter was still in the stage of agitation at the close of the year, with every probability of success.

CAUSES. Little progress was made in 1911 in the analysis of conditions producing higher prices. There was rather wide agreement that the chief and most general cause has been the increased production of gold. The world's annual production has risen rapidly from little more than \$100,000,000 in the early 90's to more than \$450,000,000 in recent years. That this in all probability is the chief cause is shown by two facts. The first is that prices are merely ratios between the value of money and the values of commodities, and a great increase in the volume of gold would cheapen it and raise prices. The second fact is that this is the only important cause which would affect prices throughout the world. Other causes assigned with good show of reason in cases of special articles were: The tariff; the trusts; cold storage; deceptive weights, measures, and qualities; higher standards of living; concentration of population in cities; and increased costs of retailing. Still other less plausible causes assigned were: Wasteful farming methods; bad banking methods; great increase in public expenditures; trade unions, advance in wages, and shortening of hours of labor. The causes assigned often depended on the special hobbies of the writer.

PRIMARY ELECTIONS. See ELECTORAL REFORM.

PRINCE EDWARD ISLAND. An insular province of the Dominion of Canada. Capital, Charlottetown (population, preliminary returns, census of June 1, 1911, 11,198). Area, 2184 sq. miles. Population (1911 final), 93,728. The province is administered by a lieutenant-governor (in 1911, appointed June 1, 1910, Benjamin Rogers), appointed by the governor-general of Canada, aided by an executive council (responsible ministry), and a unicameral legis-

lative assembly of 30 elected members. Premier, Herbert James Palmer. See CANADA.

PRINCESS ROYAL. See BATTLESHIPS.

PRINCETON UNIVERSITY. The number of students in all the departments of the university in the collegiate year 1911-12 was 1543, of whom all but 152 were in the academic department. There were 143 in the graduate school and 9 in the school of electrical engineering. In the graduate body were included students from Canada, Japan, Brazil, Ceylon, China, Egypt, India, England, Ireland, Italy, and Wales. The faculty and instructors numbered 182. During the year there were several important changes in the faculty. Winthrop More Daniels, professor of political economy, resigned to become a member of the Public Utilities Commission of New Jersey. Dr. Oliver Samuel Tonks, since 1905 preceptor in art and archaeology, resigned to accept a professorship in art at Vassar College. Dr. George David Birkhoff, since 1909 preceptor in mathematics, was elected professor in mathematics. Dr. Edward S. Corwin was elected professor of politics, Prof. Ulric Dahlgren professor of biology, Dr. Henry N. Russell professor of astronomy, Dr. Frank Albert Fetter professor of political economy, and Dr. John Duncan Spaeth professor of English. During the year Holder Hall, a new dormitory, a gift of Mrs. Russell Sage, was completed. Another dormitory, the gift of the classes of 1884 and 1885, was added. Work upon the graduate college buildings was begun in June, 1911, and at the end of the year the foundations were practically completed. These buildings include the dormitories of Thompson College, Proctor dining hall, and the Cleveland Memorial Tower. At the end of the year a successor to Dr. Woodrow Wilson as president of the university had not been chosen. John Aikman Stewart was chosen president pro tempore. See UNIVERSITIES AND COLLEGES.

PRINCIPE. See SÃO THOMÉ.

PRINGLE, CYRUS GUERNSEY. An American botanist and traveler, died May 26, 1911. He was born in Charlotte, Vt., in 1838, and received his education in various schools in Vermont and Canada. From 1881 to 1884 he made important collections in forestry and general botany in Arizona, California, Oregon, and Washington as collector for the American Museum of Natural History. From 1885 to the time of his death he was botanical collector for Harvard University. He was also keeper of the herbarium of the University of Vermont. He was for many years engaged upon the thorough exploration of the flora of Mexico, placing large collections in 50 or more of the most important herbaria of the world. He was the author of *Notes on the Forest Vegetation of Mexico* and *Notes on Botanical Travel in Mexico*. He was a member of several botanical societies.

PRISON LABOR LEGISLATION. See PENOLOGY.

PRISON LABOR, NATIONAL COMMITTEE ON. See PENOLOGY.

PRISON REFORM. See PENOLOGY.

PRISONS, POPULATION OF. See PENOLOGY.

PROBATION. See PENOLOGY.

PROCTOR, FLETCHER DUTTON. Former governor of Vermont, died September 27, 1911. He was born at Cavendish, Vt., in 1860, the son of Redfield Proctor, who was secretary of war under President Harrison, and himself at one time governor of the State. He graduated from



Photograph by Miss Johnston and Mrs. Hewitt

**THE PROTESTANT EPISCOPAL CATHEDRAL OF ST. JOHN THE DIVINE
NEW YORK CITY**

View of Choir and Chancel

Amherst College in 1882 and at once engaged in the business of marble quarrying, in which he acquired wealth. In 1906 he was elected governor of the State on the Republican ticket, defeating the fusion candidate. He had previously been a member of the State house of representatives, and of the State senate.

PROCTOR PRIZE. See PAINTING.

PRODUCTION, ECONOMICS OF. See AGRICULTURE.

PROFESSIONAL SCHOOLS. See UNIVERSITIES AND COLLEGES.

PROHIBITION. See ALABAMA, MAINE, TEXAS, and LIQUOR REGULATION.

PROPORTIONAL REPRESENTATION. See BELGIUM, FRANCE, and SWITZERLAND, under History.

PROTESTANT EPISCOPAL CHURCH. The communicants in this denomination, including those in the United States and foreign missions, numbered in 1911 963,067, compared with 946,252 in 1910, an increase of 16,845 in the year. The clergy numbered 5806, the parishes and missions 8065. In the Sunday schools of the denomination were 449,938 scholars and 50,456 teachers. The total contributions from all sources for the work of the denomination in 1911 amounted to \$18,692,211. The denomination comprised in the United States 68 dioceses and 23 missionary districts, including those in Alaska and insular possessions. There are also 11 foreign missionary districts. During 1911 the church lost by death five of its bishops: Edward Atwell, Bishop of Canada; William Paret, Bishop of Maryland; Alexander Hamilton Vinton, Bishop of Western Massachusetts; Ozi William Whitaker, Bishop of Pennsylvania, and Channing Moore Williams, sometime missionary Bishop of Japan. The following bishops were consecrated during the year: Julius W. Atwood, Missionary Bishop of Arizona, consecrated January 18, 1911; Thomas Frederick Davies, Bishop of Western Massachusetts, consecrated October 18; Rogers Israel, Bishop of Erie, consecrated February 24; James de Wolf Perry, Jr., Bishop of Rhode Island, consecrated January 6; Philip M. Rhinelander, Bishop Coadjutor of Pennsylvania, consecrated May 10; Louis C. Sanford, Missionary Bishop of San Joaquin, consecrated January 25; Theodore Payne Thurston, Missionary Bishop of Eastern Oklahoma, consecrated January 25; and James R. Winchester, Coadjutor Bishop of Arkansas, consecrated September 29.

The latest general convention of the denomination was held in Cincinnati, O., in 1910. These conventions are triennial. The church congress held its twenty-ninth annual session in Washington in April, 1911. Among the questions discussed were the following: "The Value of Protestantism," "Woman Suffrage as Affecting Our Religious and Educational Institutions," "Seat of Authority in Church Government," and "The Need of Prayer Book Revision to Meet Present Day Conditions." The congress was addressed by President Taft.

One of the most interesting events in the history of the denomination during the year was the opening and consecration of the choir and crossing of the Cathedral of St. John the Divine on Morningside Heights, New York City, which took place on Wednesday, April 19, in Easter week. The consecrator was the Right Rev. Dr. Greer, Bishop of New York.

Social Work in the Church was a subject which

received marked attention during the year. At the general convention in 1910 an entire day was devoted to a discussion of this phase of church work. Commissions were appointed during 1911 in several dioceses. In the diocese of Milwaukee the commission obtained from the diocesan council the authority to represent the church in great social and moral questions which at any time might be at issue in bills before the legislature, and the commission acted in behalf of the church in connection with a number of bills at the session of 1911.

PROTOZOA. See ZOÖLOGY.

PROVIDENCE. See RHODE ISLAND.

PROVINCE WELLESLEY. See STRAITS SETTLEMENTS.

PRUSSIA. See GERMANY.

PRUSSIAN DIET. See GERMANY, History.

PSYCHICAL RESEARCH. The work of 1911, especially that of the British Society, bears witness to the deep influence left upon "research" by the late Mr. Frank Podmore, whose posthumous book *The Newer Spiritualism* (1910) has aroused much discussion. Podmore offered the unusual spectacle of a competent writer once thoroughly convinced of the truth of the spiritistic doctrine only to turn skeptic and critic, while still he maintained an active and generous interest in psychical research. (See *Proceedings of the [British] Society for Psychical Research*, lxii., March, 1911). Podmore's influence was perhaps as wholesome as that of any person prominent in "research" within the present generation. It was his mission, as Andrew Lang put it, in his presidential address on May 16, "to throw cold water on too sanguine brethren." The current British *Proceedings* are occupied, for the most part, with further interpretation of the communications "received through" the famous mediums and with the general theory of spiritistic phenomena. The *Proceedings of the American Society for Psychical Research* (vol. v., pt. 1) were devoted to "A Case of Hysteria." The medium was a young woman without "professional" training or practice, who was examined at length by Drs. Hyslop, Hamilton, and Smyth. The authors regard the person as an hysterical, although an independent medical examination "failed to disclose any sign of either mental or physical disease." Pictures taken by flashlight during the trance séances revealed many clever manoeuvres on the part of the medium. In interpreting the results, the writers make much of the principle of "trance deception." The "mixture of successful and abortive efforts" at supernormal communication they refer to the hysterical condition of the patient, and they are inclined to believe that "it is precisely in this mixture that the priceless value of the case lies." A brief account of the case is given in the *Journal of the Society for May* (vol. v., 289). The October number of the *Journal* announced the establishment of an endowment fund of \$25,000. In *The Evidence for the Supernatural*, I. L. Tuckett hopes to interest those who have not much time for reading and who are nevertheless anxious to form for themselves a sound opinion upon the evidence in question. The volume reviews the testimony for and against telepathy, clairvoyance, spiritism, miracles, and the efficacy of prayer. The author supports an agnostic attitude by the contention that much of the corroborative evidence has been furnished and interpreted by persons untrained either in scientific research at large or in the

methodical study of the mental processes and functions involved. Tuckett alludes to Lecky's assertion that the final rejection of witchcraft was due less to the cogency of argument than to the incongruence of the belief with the intellectual tendencies of modern times, and he suggests that likewise the fate of current beliefs in the supernatural will rest, in large measure, upon their conformity to the general intellectual attitude of future generations. Two English ladies, who wrote under the names "Miss Morison" and "Miss Lamont," describe in *An Adventure*, their hallucinatory experience during a visit to the Petit Trianon at Versailles. Objects and persons appeared to them as of the time of Marie Antoinette. The authors say, by way of explanation, that they may have "entered within an act of the queen's memory when alive." An interesting review and criticism of the book are to be found in the British *Proceedings* of the Society for Psychical Research for June (lxiii, 353). Readers of Henry Frank's *Modern Light on Immortality* (1909) will know the type of speculative construction to expect in his new book entitled *Psychic Phenomena, Science and Immortality*. The volume on *Psychical Research*, written for the *Home University Library of Modern Knowledge*, has been done by Prof. W. F. Barrett of Dublin, the veteran worker in the British Society. *Spiritism and Psychology* is a new book by Th. Flournoy, the author of *From India to the Planet Mars*.

PSYCHOLOGICAL ASSOCIATION, AMERICAN. See PSYCHOLOGY.

PSYCHOLOGY. Within the last few years two strong and distinct tendencies have appeared within the science of psychology; the first leads toward the various arts of practice and of application, especially toward education, law, medicine, and commerce, and the second involves wide extension of empirical methods of research to the study of the intellectual functions and of the will. They may both be called "terminal tendencies," since, on the one hand, application collects within the arts the ripest fruits of pure science, and since, on the other, thinking and voluntary action bring the investigator to the furthest bounds, to the most subtle and involved processes and functions, of mind. It is, then, perhaps, natural that these two far-reaching tendencies should have led psychologists, during the year just closed, to undertake a new inventory of principles, methods, and results. Certain it is that a review of psychology for the year 1911 reveals an unusually large number of general systematic treatises which cover the subject in whole or in part from many different points of view.

MEETINGS AND GENERAL NEWS. During the Christmas holidays the American Psychological Association held its annual meetings for 1911 with the Southern Society for Philosophy and Psychology, at Washington. The conference of experimental psychologists occurred in Ithaca, April 17-19. A part of the Bologna (4th international) Congress for Philosophy (April 6-19) was devoted to psychological subjects. The list of deaths during the year includes the following names: Sir Francis Galton, author of *Hereditary Genius* and *Inquiries into Human Faculty*, and founder of the science and art of eugenics; W. A. Nagel, of the University of Rostock, widely known for his work upon the senses of man and of animals and as editor of the German periodical *Zeitschrift für Psychologie* and

Physiologie der Sinnesorgane, and Alfred Binet, director of the psychological laboratory of the Sorbonne, editor of *L'année psychologique* and brilliant writer of numerous psychological books and articles. Twenty-three doctoral degrees were conferred upon students of psychology by American universities.

GENERAL BOOKS AND TREATISES. First to be mentioned are several new textbooks. In the production of these, America seems to have been most prolific. Two outlines of similar aim but of unlike temper are *An Introduction to Psychology*, by R. M. Yerkes of Harvard, and *The Essentials of Psychology*, by W. B. Pillsbury of the University of Michigan. Yerkes discovers the fourfold root of the science in analytical and integrative description, in the tracing of individual and racial histories, in the enunciation of laws and principles, and in the exposition of causes and correlations. To this fourfold treatment he prefixes a general introduction and appends a section on mental control. The book gives a prominent place to introspection. The lay reader will find of especial interest the chapters which discuss animal psychology and eugenics. Pillsbury defines psychology as the science of human behavior, and behavior "includes everything from the simplest movements of walking or of fingering the pen to the activities involved in swaying an audience by speech or in carrying to completion some great engineering work." Consciousness, so the author holds, is only a means to the study of behavior. The book treats in order nervous physiology, the analysis of consciousness and of behavior, and the study of the more complicated activities. It takes, for the most part, the "functional" point of view and it is of the "biologizing" sort. Work, fatigue, and sleep are separately treated (chap. xiv.). C. S. Myers's *An Introduction to Experimental Psychology* is a new British text. The treatment is elementary and the work is designed to interest the novice in psychology. To this end, illustrative material is freely imported from anthropology, art, and common life. Two chapters are devoted to tests for the display of individual differences. A readable *Introductory Psychology* was written by M. S. Read. It covers the general field at second-hand, and the author has made no attempt "to add to the body of scientific knowledge on the subject." The student who enters the science through this work will have presently—if he continues—to revise a large number of his concepts and definitions, for the author has set them forth in an untechnical and common-sense form. In 1887, Professor Ladd of Yale published his *Elements of Physiological Psychology*. It was the first general work of its kind in English and it served an extremely important function in the development of psychology in this country. In 1911 it appeared in a revised and enlarged edition (G. T. Ladd and R. S. Woodworth). Within the last quarter of a century our knowledge of the conditions and consequents of mental process has undergone vast extension; and the new book brings together in a compendious way the results of recent research. Its usefulness is much enhanced by a full index. Another psychophysical work of generous proportions is the volume entitled *Body and Mind*. Its author is W. McDougall of Oxford University. It is less an exposition of psychological facts than a critical essay in psychological theory. It at-

tempts "a history and a defense of animism," and it is written for the general public as well as for psychologists. The book opposes animism or the belief in an "animating principle" to materialism; though the author means to give the terms a scientific, not a metaphysical, interpretation. He argues that the mechanistic view of the world is inadequate and he contends that the "conception of the soul is an hypothesis which is indispensable to science at the present day." He would make "psychical dispositions" responsible not alone for "conscious thinking," but for morphogenesis, heredity, and evolution as well. The causal efficacy of mind is also supported by E. Becker in *Gehirn und Seele*. A skeptical view of the scientific integrity of experimental psychology is taken by N. Kostyleff in *La crise de la psychologie expérimentale*, etc. The validity of the view is challenged by N. Braunshausen (*Arch. f. d. ges. Psych.*, xxi., Literaturbericht, p. 1), who reviews the results and accomplishments of the science.

The psychological articles of the new (11th) edition of the *Encyclopædia Britannica* have been written by many hands. The chief article is the long, systematic *Psychology* by Prof. James Ward of Cambridge University. It is a compilation and revision of the articles which appeared in the 9th (1886) and 10th (1902) editions. A recent appraisement of the new articles leads the reviewer (E. B. Titchener in *Amer. J. of Psych.* xxiii., 1912, 37) to conclude: "My general impression, after this survey, is that the new Britannica does not reproduce the psychological atmosphere of its day and generation." It is a noteworthy fact that new editions of all three of the general works on psychology by Wilhelm Wundt should have appeared during a single year: *Grundzüge der physiologischen Psychologie* (vol. iii., 6th ed.); *Grundriss der Psychologie* (10th ed.), and *Vorlesungen über die Menschen- und Tierseele* (5th ed.). There came also from the pen of the same writer a volume of essays (*Kleine Schriften*, vol. ii.), and a book on the psychology of peoples (*Probleme der Völkerpsychologie*).

In *The Mind of Primitive Man*, Franz Boas has made a valuable contribution to the historical study of the human consciousness. Professor Boas compares primitive and civilized minds, while he tries to estimate the hereditary and environmental influences which have played their part in shaping human societies. The book is commendable for its critical acumen as well as for the rigor of its scientific method. The writer clears the ground by bringing into question such venerable dogmas as the inequality of races, the evolution of culture, and the growth of human faculty. He presents strong arguments for the essential likeness of primitive and civilized minds and for the equal endowment of all races. Cultural inequalities he refers rather to environmental influences and to such "accidents" as size and isolation of stocks than to ultimate differences of heritable ability. The same fundamental qualities and functions of mind, then—the doctrine runs—are to be found at all levels or stages of culture; the same intellect, the same volitional and emotive reactions, and likewise the same forms of society and essentially the same human institutions. Obvious divergences in primitive and advanced cultures and striking differences of race remain to be accounted for.

Boas's explanation is psychological. Although all races and all cultures share the same mental organization, the character of their traditions leads them to interpret the world in widely different ways. While they alike possess articulate language, implements, and the "power of reason," disparity in their geographical and social surrounding suggests the unlike employment of mental functions. Thus where the primitive view of the world is based upon such emotive experiences as are embodied in folk-lore and mythology, civilized man substitutes the more logical categories which his traditions have developed in his scientific and metaphysical systems. Causal explanation is substituted for casual and emotional connections. "The striking features of primitive culture are the great number of associations of entirely heterogeneous groups of phenomena, such as natural phenomena and individual emotion, social groupings, and religious concepts, decorative arts, and symbolic interpretation."

The Place of Movement in Consciousness is the paradoxical title of an essay by W. B. Pillsbury (*Psych. Rev.*, xviii., 83) upon "motor" theories. The author's contention is that although organic movement is of large import to mind, the true key to the understanding of mental functions is the concept of organization. "More important than either sensation by itself or movement by itself is the fact that consciousness is always an organized system. This system is constantly growing with and by use, and to it every experience contributes. It is constantly receiving new contributions from sensory elements and each stage in its development is tested by action." The French annual, *L'année psychologique* (17th year), published for the last time under the direction of the gifted Alfred Binet, is devoted in large measure to problems in social and genetic psychology and in the psychology of the abnormal. It contains also a large number of bibliographical notices and reviews. *Within the Mind Maze* (E. L. Larkin) is the curious attempt of an astronomer, innocent of psychological knowledge and impressed by the recent achievements of physical and biological science, to deduce the history of the universe from the "directive" action of a creative mind upon electrons. The first of three volumes to be devoted to memory and allied subjects (*Zur Analyse der Gedächtnistätigkeit und des Vorstellungsverlaufes*) by G. E. Müller was published during 1911. The work promises to be of the first importance. For nearly twenty years Professor Müller has been engaged upon the experimental study of memory and association. During this time a large number of investigations have come from his laboratory in Göttingen. The present work started from the examination of a case of phenomenal memory (Dr. Rückle); but it has expanded to problems of memory at large and even to certain aspects of perception, reproduction, abstraction, thought, and volition. To the psychologist, the most important section of the first instalment is one which includes (pp. 61-176) a searching and profound critique of psychological method. It is doubtful whether the theory and the practice of introspection have ever before received so able an exposition.

A definitive history of psychology has never been written. Some years ago M. Dessoir of Berlin published the first volume of a *Geschichte der*

neueren deutschen Psychologie (2nd ed., 1902). It was largely biographical and it brought the subject down to the beginning of the eighteenth century. During the year just closed, Dessoir added to this fragment a general historical sketch, *Abriss einer Geschichte der Psychologie*. At the same time, O. Klemm brought out his *Geschichte der Psychologie* for the German scientific series called *Wissenschaft und Hypothese*. Klemm's treatment is developmental as well as chronological. He outlines first the general trends (metaphysical and empirical) of the subject, then he traces the development of fundamental concepts—such as 'consciousness,' 'mental analysis,' and 'mental measurement'—and he concludes with the history of the more important theories (of sensation, perception of space, feeling, and will). The volume forms a useful handbook. It will be especially welcome to teachers of the science. They will find it to be of first-rate assistance to nature students.

ASSOCIATION AND THOUGHT. Reference has been made in previous issues of the YEAR BOOK (e. g. 1909, 606; 1910, 613) to the widely-used method of paired-associates. A word (called the stimulus-word) is presented to the observer, who calls out or writes down the next word that comes to his mind. It is obvious that the quality and the quickness of the response-word will be subject to the effects of practice. This fact was worked out in part by Wreschner (see YEAR BOOK, 1907, 661); but the matter has been more fully and explicitly ascertained by F. L. Wells (*Amer. J. of Psych.*, xxii., 1). When his observers repeated the experiments day after day, Wells found (1) a decrease in the association-time to a minimum of 1.2 sec., (2) an increased availability of the vocabulary of the observer, and (3) a loss in emotive coloring and in the depth and significance of the associations formed. The third result is, in all probability, related to the monotony experienced by persons who lead narrow lives within a limited range of interests. (Cf. Kent and Rosanoff, YEAR BOOK, 1910, 613.)

Continuing the investigation of thought by the method of question-and-answer, H. Kakise found (*Amer. J. of Psych.*, xxii., 14) that whether or not fully developed images appear in the understanding of words and phrases depends upon the length of time during which the thought processes run. The quicker the thought the less frequent and full the imagery. Besides images, Kakise thinks that meaning is carried by a "feeling of concept" (cf. Moore, YEAR BOOK, 1910, 614), which is reducible either to a "feeling of familiarity" (a simple "quality") or to a "feeling of content" (the experienced thinness or thickness of incipient associative aggregates.) In an experimental study of the same problem, E. Jacobson draws a sharp distinction between the *process* of thought and its *meaning* or *significance* (*ibid.*, xxii., 553). He required his observers to place marks of parenthesis about everything in their reports (expression, intimation, objective reference, description of bodily processes, etc.), which was not a direct and immediate transcript of consciousness itself. This device should help to decide the issues of "imageless thought" (cf. J. R. Angell, *Psych. Rev.* xviii., 295). Another topic of debate in the psychology of the thought processes concerns the nature of the "conscious attitudes" (the Germans' *Bewusstseinslagen*). The attitudes are compact 'glimpses' of thought

which mean such things as 'doubt,' 'vacillation,' 'apprehension,' and 'conviction.' The point under discussion is whether these flashes of thought are simple and unique processes or compressed fragments and residua of sensations and images. H. M. Clarke took the latter view (*Amer. J. of Psych.*, xxii., 214) and succeeded in analysing a number of the processes in question (cf. YEAR BOOK, 1910, 614).

INDIVIDUAL PSYCHOLOGY. The problem of individual or "differential" psychology lies in the description and classification of minds as belonging to different "types" or species. Everyday life teaches clearly enough that minds do differ, in temper, in aptitude, and in capacity. In school, in business, and in society at large, persons are said to be 'brilliant,' 'dull,' 'morose,' 'benevolent,' 'selfish,' 'capable,' and the like; and it is just these differences that individual psychology attempts to reduce to lower terms to bring to scientific description. The first basis of classification to lead to important results was that of "ideational" type. Galton in England, Charcot in France, and Fechner in Germany, independently discovered signal differences in the imaginal 'furniture' of minds. They found that where one person used picture images, another thinks in terms of sounds, and still another in images of movements or of touch. Individuals came then to be designated as "eye-minded," "ear-minded," "muscle-minded," and so on. Recent years have brought a rapid development of the doctrine of types. Not only dissimilarities in imagery, but also differences in mode of action, in liability to fatigue, in capacity for mental work, in quickness of association, and in emotive tendency have been revealed by experiment. However, a final and satisfactory means of depicting the essential processes, states, and functions of the individual consciousness has not yet been devised. That is the main problem of "mental tests." In this connection, A. Feuchtwanger's proposal during the year of the method of "systematic self-observation" is of interest (*Zeitschr. für Psych.*, lviii., 161). The method is that of the thought processes. Words, sentences, and nonsense syllables were read to and by the observers and also written down, questions were propounded, objects and pictures were shown, etc. In each case the observer reacted with an associated word and then he wrote down a full introspective account of his imagery. The results confirm the suspicion that one and the same person may use, upon different occasions and under different circumstances, quite different imageries. Thus, reading may be carried on in auditory-kinesthetic images, the memory of places held in visual pictures, and the memory of events in terms of movement. Feuchtwanger found, in some cases, that the verbal consciousness revealed to introspection no imagery whatsoever. These experiences he calls, after the fashion of the times, "verbal attitudes." The method is of interest because it can be checked both by an enormous amount of introspective material already collected in the study of thought and also by a number of other, "indirect," methods which stand in the literature. The relation of ideational type to memory and association was discussed at length by G. E. Müller (see above).

LAUGHTER AND THE COMIC. No one of the typical attitudes which man assumes toward

the world has more persistently stimulated intellectual curiosity than the comic attitude. H. M. Kallen has reviewed various theories of the comic in the *Amer. J. of Psych.* (xxii., 137). "The net result is that they are all true, and in so far as they deal with unrelated facts, all exclusive of one another. They contain the essence of the comic, but they have not really isolated it. Our journey through the field of laughter has shown us that this essence may reside anywhere in the universe. It is not confined to human beings or to social norms, as certain authors believe; nor is it limited to the merely living. Its habitat is as wide as experience. As anything may be beautiful, so anything may be comic. It becomes comic, when somehow it is at a disadvantage, out of proportion, mal-adjusted. It becomes comic when it constitutes a disharmony." The disharmony, the mal-adjustment, is removed in the comic attitude because the observer stands apart from it and in commanding it degrades it and pronounces it ineffectual. "The environment which comedy presents to the mind is primarily an evil, full of discord and unrest. This evil comes to us, however, not as our peer, but as our slave, bankrupt, and stripped of its power to harm. It is a relation which converts evil into goodness. It adapts us adequately to disharmony and mal-adjustment, snatching, as it were, life's victory from the jaws of death itself." It is obvious that the psychological description and explanation of comedy are still imperfect. The critical reader will not fail to note the influence of Bergson's theory of laughter upon Kallen's account. It may be remarked, by the way, that Bergson's book *Laughter; an Essay on the Meaning of the Comic*, has appeared in English during the year (translators, C. Brereton and F. Rothwell).

ANIMAL PSYCHOLOGY. The French writer, Georges Bohn, has followed his *La naissance de l'intelligence* (YEAR BOOK, 1909, 607) with another volume which he calls *La nouvelle psychologie animale*. The earlier work was chiefly devoted to the lower animals; this one to the vertebrates and to the higher invertebrates. Both are inspired by the methods and principles of Loeb, and both confuse psychology, biology, and physiological chemistry. The new book gives a large place to instincts and to certain physiological methods of studying the higher forms of life. An important survey of a single class of animal responses to stimulus is contained in S. O. Mast's large volume on *Light and the Behavior of Lower Organisms*. The book rests upon a broad basis of experimental fact, much of which has been laid at first hand by the author himself. It serves to classify the various ways in which animals are orientated under the influence of light-stimulation. The work is done in the spirit of Jennings and it furnishes a counterblast to the theories of Loeb. The first volume of *The Journal of Animal Behavior* was published in 1911. Many of its 500 pages are devoted to psychological subjects. The volume includes studies of protozoa, insects, birds, the frog, the newt, the turtle, the chick, and the white rat, and also an annual review and bibliography. During the year, four *Behavior Monographs* have been published in connection with the *Journal: The Development of Certain Instincts and Habits in Chicks* (R. S. Breed), *Methods of Studying Vision in Animals* (R. M. Yerkes and J. B. Watson), *An Experimental*

Study on the Death-Feigning of Belostoma, etc. (H. H. P. Severin and H. C. Severin), and *The Biology of Physa* (J. Dawson). The employment of experiment in the study of learning among the higher animals owes much to the pioneer labors of E. L. Thorndike, who developed in the nineties the "puzzle" or "problem" method, using cats, dogs, chicks, and monkeys. During the year, Thorndike republished his studies, together with some essays of a more general nature, in a volume entitled *Animal Intelligence*. This exploitation of the forms which stand near the upper end of the animate scale has raised the question as to the relation of learning to consciousness at large. Is consciousness necessary—psychologists are asking—to learning? S. O. Mast (*Psych. Bull.*, viii., 264) finds striking modifications of behavior in *Amœba* and L. M. Day and M. Bentley (*Journal of Animal Behavior*, i., 67) changed certain performances of *Paramecium* by a few hours' tuition. And yet these authors hesitate to say that such instances of acquisition fall under the same type as human or animal "learning," or even that they imply consciousness at all. There is first required a definition of learning which shall set its relation to consciousness and to bodily performances. This relation has just been made the subject of a special inquiry by L. E. Ordahl (*Amer. J. of Psych.*, xxii., 158), who defines learning as "the formation of associations between certain stimuli and definite modes of reaction." This writer finds that consciousness is a "corrective agent" serving to improve and to organize the process of learning; but that non-conscious factors coöperate both to fix the process and to modify the organic response. Certainly learning may proceed quite without an appreciation of end and also without knowledge of the process itself. It may be that it proceeds under some circumstances as a purely physiological matter.

PSYCHOTHERAPY. Persons interested in the doctrine and the practices of the Freudian school (see YEAR BOOK, 1909, 607, 608) will find long and sympathetic reviews of the recent literature in the *Amer. J. of Psych.* (xxii., 408, xxiii., 115). The same periodical (xxii., 477) also contains an article written in the spirit of Freud on the *Psychopathology of Everyday Life* (E. Jones). Jones believes, after Freud, that such common occurrences as slips of the tongue or of the pen, lapses of memory, absent-minded performances, and the like, are referable to definite mental causes which lie in secondary dispositions or trains of thought and which can be revealed through the process of psychoanalysis. The cause or motive is unintentionally repressed, but nevertheless the repression, which serves to keep out of consciousness "undesirable or painful thoughts," may, on occasion, produce serious, even pathological, consequences. During the year, Dr. Jones also published a paper (*J. of Abnormal Psych.*, v., 217) designed to show the relative value of suggestion and psychoanalysis in psychotherapeutical practice. "Suggestion," he says, "plays the chief part in all methods of treatment of the psychoneuroses except the psychoanalytic one. It acts by releasing the repressed desires that are finding expression in the form of symptoms, and allowing them to become attached to the idea of the physician; psychologically this means the replacement of one symptom by another, namely psychosexual dependence on the physician. This

is often of temporary, and sometimes of permanent, benefit, but in severe cases the replacement is inconvenient and detrimental. In psychoanalysis the repressed desires are permanently released by being made conscious, and hence can be directed, by sublimation, to more useful, non-sexual, social aims."

The usefulness of Freud's method in some cases of dementia præcox is attested by A. Hoch (*ibid.*, v., 255). There remains, however, plenty of opposition to the Freudian school; and especially to its emphasis upon sex. "The psychoanalytic method is surely not the only one that is of value in the treatment of hysteria, neurasthenia, or obsessions. In so far as the method is connected with the detailed discussion of sexual matters and perversities, it is justly rejected by many authors. Psychical treatment, as it is practiced by those who do not belong to Freud's school, accomplishes as much as sexual psychoanalysis, but it must be aided according to the particular case by general therapeutic measures" (A. Friedländer, *ibid.*, v., 319). M. Prince goes further: "No one," he declares, "who has shown by his writings that he is thoroughly trained in and conversant from first-hand knowledge with all the phenomena of abnormal experimental and functional psychology has accepted Freud's theory" (*ibid.* v., 353). For a current French critique of Freudian method, see N. Kostyleff, (*J. de psych. normale et pathologique*, viii., 135, 246). A book on *Scientific Mental Healing* (H. A. Bruce) contains several popular essays on the history of psychotherapy and on other matters pertaining to the abnormal in mind. A history of the use of mental agencies in medicine was written during the year by G. B. Cutten in *Three Thousand Years of Mental Healing*. Among other virtues, the book is notable as showing the connection which has for centuries obtained between typical forms of the art of healing and prevalent attitudes assumed toward religion, medicine, superstition, and science.

PUBLIC DEBT. See articles on countries.

PUBLIC EDUCATION. See EDUCATION.

PUBLIC HEALTH. See HYGIENE.

PUBLIC LANDS. See LANDS, PUBLIC.

PUBLIC SCHOOLS. See EDUCATION.

PUGILISM. See BOXING.

PULITZER, JOSEPH. An American journalist, died October 29, 1911. He was born in Budapest, Hungary, in 1847. His father was a Hungarian Jew and his mother a Roman Catholic. He received some instruction from a private tutor in his boyhood, which was the extent of his formal education. In 1864 he came to the United States as an immigrant. In the same year he joined the Federal army as a private in the First New York Cavalry. He served throughout the war and was honorably discharged at its close. He endeavored to secure employment in New York, and, failing, went to St. Louis, where he was engaged in various employments, including firing on a steamboat running between St. Louis and New Orleans. In 1867 he secured a position as a reporter on a daily German newspaper, the *Westliche Post*. He was very successful as a reporter and in 1871 was made managing editor of the newspaper. A small inheritance added to his savings enabled him at the same time to become part owner. He took great interest in politics and came to have considerable political power. He is credited with having largely brought

about the nomination of Horace Greeley for President in 1872. He made many political speeches during his campaign, chiefly in German. Before the next campaign he had changed his political belief and had become a Democrat. Carl Schurz had an interest in the *Westliche Post*, but their divergent political beliefs made it impossible for him and Mr. Pulitzer to continue their newspaper relations. In 1875 the latter sold his interests to Schurz and Dr. Preetorius. In the following year Charles A. Dana selected Mr. Pulitzer to go to Washington to report the proceedings of the Electoral Commission, which was considering the election of President Hayes. Shortly afterwards he went to Europe as a special correspondent of the *New York Sun*. He returned to the United States in the winter of 1878 and went again to St. Louis. In the following year he bought at public auction the *St. Louis Evening Dispatch*. At the same time he acquired the *Evening Post* and issued the paper under the title *St. Louis Post-Dispatch*. This was successful, and in 1883 Mr. Pulitzer was able to buy the *New York World* from Jay Gould. This was on the eve of the presidential campaign, and he entered actively into the fight to elect Grover Cleveland, and to him was given a considerable amount of credit for the Democratic success in that election. In 1885 he was elected to Congress from the Ninth New York district as candidate of Tammany Hall. Three months later, however, he resigned his seat and returned to his editorial work. Mr. Pulitzer rose from the editorship of a paper with a small circulation and doubtful reputation to be one of the most prosperous newspaper proprietors in the world. He was the first exponent of what later came to be known as "yellow journalism," and he published a paper which frankly appealed to the less enlightened portion of the community. He kept in constant touch with the management of his papers in both New York and St. Louis up to the time of his death. In 1887 his health broke down from overwork, and at the same time his eyesight failed, so that for many years before his death he was totally blind. In 1903 he endowed Columbia University with \$1,000,000 to establish a school of journalism, with the promise of an additional million when the school should be established. Mr. Pulitzer spent the greater part of his latter years in cruising about the world in his private yacht.

PURDUE UNIVERSITY. An institution of higher learning at Lafayette, Ind., founded in 1869. The number of students enrolled in the various departments of the university in 1910-11 was 1885. The faculty numbered 158. There were no notable changes in the faculty during the year. The institution is supported chiefly by the State. The amount of its invested funds is about \$340,000, and the annual income amounts to \$700,000. The library contains about 30,000 volumes. President, 1911, W. E. Stone, LL. D.

PURE FOOD LAWS. See AGRICULTURAL LEGISLATION, and FOOD and NUTRITION.

PURITAN. See NAVAL PROGRESS, *Projectiles*.

PYGMIES. See EXPLOitation, *Australasia*.

PYLE, HOWARD. An American artist and illustrator, died November 9, 1911. He was born at Wilmington, Del., in 1853, and was educated in private schools. His only formal training in art was obtained in three years in a

Philadelphia art school and in the Art Students' League in New York City. After this course he returned to Wilmington and engaged in business, in the meantime writing and drawing at night. After sketches and verses had been accepted by *Scribner's Magazine* and *St. Nicholas*, he removed to New York, where he contributed drawings to *Harper's Weekly* and other periodicals. Within a few years he had become well known as an illustrator. He returned to Wilmington, which was his home for the remainder of his life. In addition to his work as an artist and writer, he established a school where were trained some of the foremost American artists engaged in making illustrations for newspapers and periodicals. Mr. Pyle wrote many stories which he illustrated himself and which appeared in leading magazines in the United States. He also wrote many books for children. Among his published works are *The Merry Adventures of Robin Hood* (1883); *Pepper and Salt* (1885); *Within the Capes* (1885); *The Wonder Clock* (1887); *The Rose of Paradise* (1887); *The Garden Behind the Moon* (1895); *Rejected of Men* (1903); *The Story of King Arthur and His Knights* (1903); and *Stolen Treasure* (1907).

QUAKERS. See FRIENDS.

QUARLES, JOSEPH VERY. An American jurist, died October 7, 1911. He was born at Kenosha, Wis., in 1843. He enlisted in the Civil War and at its close entered the University of Michigan, graduating in 1866. He studied law and was admitted to the bar in 1868. He practiced at Kenosha until 1882 and subsequently at Racine and Milwaukee. He served as district attorney for Kenosha county and as mayor of that city. He also served in both houses of the Wisconsin legislature. In 1889 he was elected United States senator, serving until 1905. He was appointed district judge for the eastern district of Wisconsin in 1905 and remained on the bench until the time of his death.

QUEBEC. A province of the Dominion of Canada. Capital, Quebec (population, preliminary returns, census of June 1, 1911, 78,067). Area, 351,872 sq. miles. Population (1911 final), 2,002,712, an increase over 1901 of 353,814, or 21.46 per cent. The province is administered by a lieutenant-governor (Sir Francois Langelier, appointed 1911), appointed by the governor-general of Canada. He is aided by an executive council (responsible ministry), and a legislative body composed of two houses—the Legislative Council (24 appointed members) and the Legislative Assembly (74 elected members). Premier (1911), Sir Lomer Gouin. See CANADA.

QUEEN MARY (ship). See BATTLESHIPS.

QUEENSLAND. A state of the Commonwealth of Australia. Capital, Brisbane. Area, 670,500 sq. miles. Population, according to the final returns of the census of April 3, 1911, 605,813, which showed an increase since 1901 of 21.62 per cent., as compared with 18.05 per cent. for the commonwealth. There are a governor, appointed by the British crown, a responsible ministry, and a parliament of two houses. Governor in 1911, Sir William MacGregor; premier, D. F. Denham. See AUSTRALIA.

Early in February the retirement of Mr. Kidston, premier, and Mr. A. G. C. Hawthorn,

treasurer, caused a change of ministry. A new cabinet was formed under Mr. D. F. Denham. Parliament sanctioned a comprehensive plan for railway development, opening up wide areas of arable lands and pasture.

QUICKSILVER. The production of quicksilver in the United States in 1910 was 20,601 flasks of 75 pounds avoirdupois each, as compared with 21,075 flasks in 1909. The value of the product in 1910 was \$958,153. The greatest quantity in 1910 came from California, 17,211 flasks. From Texas came 3390 flasks. These two States are practically the only ones producing quicksilver. A small quantity is produced in Nevada and Oregon. The world's production of quicksilver in 1910 was 3399 metric tons. The largest quantity came from Spain, which produced about 1000 metric tons. From Italy came 800 tons; from Austria-Hungary, 694 tons, and about 200 metric tons were produced in Mexico. Imports of quicksilver greatly decreased, dropping from 15,568 pounds in 1909 to 667 pounds in 1910. There were exported 144,237 pounds, valued at \$91,077. Preliminary figures made by the United States Geological Survey indicate that the domestic production of quicksilver in 1911 was 21,821 flasks of 75 pounds each, valued at about \$1,000,000. There were 22 mines producing in 1911, of which 19 were in California.

RABIES. The important discovery was announced in 1911 by Sir David Semple of the Indian Medical Service that an effective anti-rabic vaccine could be made from the dead virus. Semple established the fact that animals can be as highly immunized against rabies by the vaccine prepared from dead cultures, as with the living virus, such as is used in the Pasteur method. The latter consists of a highly attenuated living virus which is difficult to handle or ship to a distance. Semple found that the rabies virus was easily destroyed by heat; a temperature of 50° C. killed a 5 per cent. dilution of fixed virus in fifteen minutes. An 8 per cent. dilution in normal saline solution was killed by 1 per cent. carbolic acid at 37° C. in twenty-four hours. When this fluid is diluted with an equal volume of normal saline solution, it becomes a 4 per cent. virus in 5 per cent. carbolic acid, which is the characteristic strength for antirabic treatment. The serum so made proved efficient in the protection of dogs, rabbits, and monkeys against inoculation of rabies. In some cases the protection was not complete, but these animals developed the disease at a later period than animals not immunized.

RACING. The passage of the Agnew-Hart racing bill by the New York legislature in 1910 sounded the death knell of the sport in New York, where the principal racing interests of the United States were centred. This bill provided that the owners and directors of the various racing associations were to be held criminally liable for any betting and bookmaking on their premises. The result of this and previous legislation was that racing in America in 1911 was confined to the Canadian tracks, to Pimlico, Md., Louisville and Latonia, Ky., and Jacksonville, Fla. Nearly all of the horses that had won renown on the United States tracks in former years were disposed of to foreign purchasers or taken abroad by their owners and entered in the French and English meetings.

Zeus, owned by S. C. Hildreth, was the best

colt of the year in the United States, H. P. Whitney's Moisant the leading filly, and H. C. Hallenbeck's Worth made the best showing of the two-year-olds. Zeus captured several races in Canada during the early part of the season and was beaten by Nigger Mike for the Toronto cup by only a few inches. Fitz-Herbert, owned by H. P. Whitney, and the winner of the Brooklyn Handicap, in 1910, was unplaced in this race. Zeus ended the season at Pimlico by easily winning the 2-mile Boure stake. The historical English Derby was won by J. B. Joel's Sunstar in 2.35%. In France the Gould and Vanderbilt stables made excellent showings.

The only important new running records of the year were made by Priscillian, who ran the $\frac{3}{4}$ mile at Hamilton, Ontario, in 1.11, and Olambala, who at Fort Erie ran 1 3-16 miles in 1.57%. There were four new records established in trotting and pacing. Uhlan, owned by C. K. G. Billings, who trotted the mile in 1.58% in 1910, beat the best time on record by trotting a mile to wagon without wind shield in 2.00. The same horse also trotted the mile on a two-lap track in 2.02%. Two notable pacing records were made in 1911. Frank Perry lowered the mark for yearlings from 2.30% to 2.15, and Miss de Forest clipped a quarter of a second off the record for three-year-olds, placing it at 2.05%.

RACQUETS AND COURT TENNIS. The national amateur racquet championship tournament in singles was held at New York in February. In the final round Reginald Fincke defeated J. Gordon Douglas 7-15, 18-13, 15-3, 15-8. In the doubles event held at Boston in January George R. Fearing, Jr., and H. D. Scott defeated Payne Whitney and M. Barger 15-5, 15-8, 15-5. J. Gordon Douglas won the gold racquet championship at Tuxedo Park, defeating H. F. McCormick 15-8, 0-15, 18-13, 15-10. Abroad, C. Williams, after winning the professional championship of England by beating E. M. Baerlein 8 games to 4, captured the world's championship by defeating Jamsetzi of Bombay, India.

Jay Gould, the amateur champion, again demonstrated his superiority in court tennis by defeating Joshua Crane in the championship tournament held at Boston in April 6-5, 6-1, 6-0. In the English championships, A. H. Gobert of France defeated F. G. Lowe, holder of the title, 6-3, 7-5, 6-2. Gobert and J. G. Ritchie of England won the doubles championship by beating the Lowe brothers 6-4, 6-4, 6-3. The French championship also was won by Gobert, who defeated Max Decurgis, the title holder, 9-7, 6-2, 4-6, 6-4.

The clay court tennis championship tournament of the United States was held at Omaha, Neb., in August. W. T. Hayes won the singles title and H. G. Whitehead and J. H. Winston the doubles title.

RADIOACTIVE ELEMENTS. See CHEMISTRY.

RADIOGRAPHY. See PHOTOTHERAPY.

RADIUM. See CHEMISTRY, INDUSTRIAL; PHOTOTHERAPY, and PHYSICS.

RAILROAD PENSIONS. See OLD-AGE PENSIONS.

RAILROAD STRIKES. See STRIKES.

RAILWAY EARNINGS, ELECTRIC. See ELECTRICAL INDUSTRIES.

RAILWAYS, INTRODUCTION. During the period from 1907 to 1911 the railways in the United States were passing through a crisis.

The first six months of 1907 were marked by an unprecedented volume of traffic, but in the closing months of the year the general business of the country was almost paralyzed by the short but severe money panic. Railway earnings fell off alarmingly, all improvement work was abandoned, and every effort was made to keep down expenses to an amount commensurate with the greatly reduced earnings. To add to the perplexities of the situation a wave of federal and State legislation, much of it unreasonable and all of it hostile to the railway interests, spread over the entire country. Congress in 1906 had conferred on the Interstate Commerce Commission power to regulate railway rates and increased its powers in other respects. The passage of this federal rate law brought the subject of railway regulation in all of its aspects prominently before every legislative body. In 1907 more than 300 new laws affecting railways were passed by the legislatures of 39 States. For some of this hostile legislation the railways by their own unreasonable and arrogant acts in the past were directly responsible. The passage of these new laws had the good effect of making the railways put their houses in order to better combat the hostility of the public. Rebating, stock-jobbing, preferential rate making, and similar practices virtually ceased and show no signs of being revived. With a return to normal business and industrial activity throughout the country railway earnings soon began to increase, but this favorable condition was offset somewhat by increased costs of material and supplies, large increases in wages of employees, and steadily rising taxes, which combined to keep down net earnings. In 1910, immediately after the Mann-Elkins act went into effect and conferred still larger powers on the Interstate Commerce Commission, the railways announced general increases in freight rates. Under the new powers given it by Congress, the Interstate Commerce Commission suspended these increases pending an investigation as to their reasonableness. This investigation required nearly nine months and in March, 1911, the commission handed down its decision denying the increased rates. On the whole the railways have passed creditably through the four-year crisis which has confronted them. Comparatively few roads suffered financially to the extent of having to resort to a receivership or even to reduce dividends. A check was put on the construction of new roads, however, and many contemplated improvements were abandoned for the time being. At the end of 1911 the general railway situation was distinctly encouraging in spite of the setbacks of the previous four years.

FEDERAL LEGISLATION IN 1911. The Sixty-first Congress was so engrossed in tariff legislation and reciprocity and in political jockeying that railway legislation received but little attention. In February, 1911, Congress passed a law requiring the regular inspection of locomotive boilers under the supervision of the Interstate Commerce Commission. Inspections must be made by the railways and reports must be filed with district inspectors, to whom authority is given to order a locomotive out of service if in their opinion the boiler or its appurtenances are not in safe condition. The law went into effect July 1, 1911. The penalty for violation of any of its provisions is a fine of \$100.

No amendments to the rate-regulation provi-

sions of the Interstate Commerce act were passed. Bills were introduced but not acted upon, requiring the railways to substitute steel passenger cars for wooden cars after January 1, 1918; to enlarge the clearances of bridges, tunnels, station platforms, and other structures, and to install block signals on all lines. It is estimated that if these changes were made as provided for in the bills which were introduced, the cost to the railways would be \$1,361,000,000, or about 10 per cent. of the total net capitalization of the railways in the United States. The annual interest charge at 4 per cent. would be \$55,000,000, or 2½ times the total amount paid by the railways for injuries to persons in 1910. These bills were typical of the restrictive measures which the railways have had to combat in State and national legislatures during the past four years.

STATE LEGISLATION. The legislatures of 40 States met in 1911 and a large number of bills affecting railways were introduced. Returns from 37 States show that 474 such bills were introduced, although only 276 became laws. In 1909 the legislatures of 41 States passed 664 laws affecting railways. Twenty-four of the 40 legislatures in session in 1911 passed few, if any, new measures, and it is significant of a change in public sentiment that many of the States which were pioneers in railway regulation and had done most in that direction seemed to have given up the quest for further restrictions and have now begun to evince an interest in attracting capital for the development of transportation and business enterprises through the enactment of sound constructive legislation in place of radical restrictive laws. Notable among such States were Texas, Oklahoma, Alabama, and Iowa.

Railway or public utility commissions with rate-making powers were established in California, Washington, Ohio, Illinois, Connecticut, and New Hampshire. Several States, including New Jersey and Massachusetts, which already had commissions passed laws giving them additional powers to regulate rates. Bills creating public utility commissions in Pennsylvania and Idaho were defeated. In Indiana the railway commission was authorized to require all steam and electric railways within the State to install block signals on all lines. Pennsylvania, California, and Indiana, among other States, passed "full crew" laws, fixing the number of trainmen carried on trains of different classes. Several States passed laws regulating the character of the rolling stock operated on passenger trains and also employers' liability laws.

RATE CASE DECISIONS. The Mann-Elkins act passed by Congress on June 18, 1910, conferred on the Interstate Commerce Commission, among other powers, the right to suspend new tariffs for from four to six months from the date they go into effect pending an inquiry as to the reasonableness of the new rates and made it incumbent on the carrier to prove the reasonableness of the proposed rate. Shortly before the passage of this act several Western roads filed new tariffs which increased freight rates between all points, to take effect July 1. The law went into effect on the same day that the increased rates were to become effective, and the Interstate Commerce Commission immediately suspended the tariffs and announced that it would inquire into the reasonableness of the new rates. The Eastern and Southwestern roads also

filed tariffs increasing freight rates and these were also suspended. Hearings were begun by the commission in New York and Chicago and the railways presented evidence purporting to show the necessity for the advanced rates on account of the increases in wages of employees, cost of materials and supplies, and in taxes. Associations of shippers presented evidence to show that the existing rates afforded a fair profit to the railways, and the commission then took the whole question under advisement shortly after the first of the year.

On February 24, 1911, the commission announced its decisions in all three cases. It refused the advances of the Eastern and Western roads, but upheld most of the increases sought by the Southwestern roads. These decisions, without doubt, constituted the most important event of the year in railway history. They came as a surprise to the railways, which confidently expected decisions in their favor. In the Southwestern rate case the commission found that the railways in that territory had not prospered as had many in other parts of the country, and therefore it permitted most of the increases, which amounted to about 7 per cent., to be put into effect.

The commission in its decision in these cases pointed out that it was not empowered to pass on the reasonableness of the *increase* in the rate, but only on the reasonableness of an *increased rate*. It was irrelevant, therefore, to consider whether there had been an increase in the cost of handling a specific commodity. A rate on one commodity between two points might be too low as compared with other rates and therefore an advance in it might be reasonable, even if the actual cost of transporting the particular commodity was reduced. While the commission explicitly recognized the fact that the rate of return on the mere physical valuation of a railway was not the sole criterion of the reasonableness of its rates, the language of the decisions implied that preponderance should be given to the cost of physical reproduction. The whole complicated question of valuation and payment for improvements out of earnings was thus introduced into the controversy. The Chicago, Burlington & Quincy Railroad, for example, contended that while its capitalization was but \$29,000 per mile, it should be permitted to earn a fair return on about \$60,000 per mile of road, owing to the increase in the value of its real estate and the sums expended out of earnings for permanent improvements. In denying this contention, the commission said:

"A railway may not increase its rates for the reason that it has accumulated out of its rates a balance of profit, which has been invested in the property. It is a conservative statement of the law that a railway may not increase its rates solely because its real estate has risen in value."

The effect of this phase of the decisions on the future financial policy of railways remains to be seen. It has been characteristic of American railways that they have always made improvements largely out of earnings, and hence their capitalization is low. If all permanent improvements of the future are to be financed entirely by new issues of securities, railway capitalization will increase at a much faster rate than ever before. In the opinion denying the rate increases of the Eastern roads, emphasis was placed on the need of efficiency in railway operation. The commission said: "No general

advance in rates should be permitted until the carriers have exhausted every reasonable effort toward economy in their business." However, but little importance was attached by the commission to the testimony adduced at one of the hearings by Louis Brandeis, attorney for an association of shippers who had made the statement that the railways of the country could save \$1,000,000 a day by the introduction of scientific efficiency methods. The commission dismissed this claim with the statement that scientific management was still everywhere in the experimental stage and that the railways could hardly expect to offset the wage increases by its general adoption.

No appeal from the decisions of the commission was made to the courts by the railways and the old rates still remain in force.

LONG AND SHORT HAUL DECISION. In July the Interstate Commerce Commission handed down another important rate decision, which hinged on an interpretation of the "long and short haul" section of the Interstate Commerce law as amended by the Mann-Elkins act, passed in 1910. The case involved the relation between rates from Atlantic coast and central points to Pacific coast cities, and to inland cities, such as Denver and Spokane. The commission recognized the effect on rates of water competition between Atlantic and Pacific coast points and therefore held that the railways could make rates from the Atlantic coast to inter-mountain points as much as twenty-five per cent. higher than the rates to the coast. However, as the force of water competition grows less with increasing distance of the originating points from the Atlantic coast, the commission established successively lower differentials between rates to the Pacific coast and to inter-mountain territory until St. Paul and Missouri River originating points were reached. From these points west, the decision of the commission prohibited lower rates to the coast than to intermediate points. The effect of this decision on the trans-continental railways was far-reaching. If the rates to the coast were maintained at a point low enough to compete with water transportation, sweeping reductions would have to be made in the rates to intermediate points, involving an estimated loss of \$12,000,000 annually in net revenue. The railways on October 3 appealed from the decision of the commission to the newly created commerce court, praying for an injunction. A month later the commerce court issued an injunction restraining the commission from enforcing its original order, relating to percentage differentials. The injunction was granted on the ground that the commission had exceeded its powers in establishing percentage relations between the rates to intermediate points and the rates to coast points, which were practically fixed by water competition. The result of the commission's decision, therefore, would be to create unreasonable and confiscatory rates to either the coast or intermediate points. An appeal from the decision of the Commerce Court was at once taken to the United States Supreme Court, which had not handed down its final decision at the close of the year.

COURT DECISIONS. The United States Supreme Court handed down during the year several decisions directly affecting railways. The most important of these were:

(a) That a railway may not exchange trans-

portation for services, releases, property, or advertising.

(b) That a State law regulating the size of crews on trains within a State is not an obstruction to interstate commerce, and is therefore valid.

(c) That the initial carrier is liable for damages occurring off its own lines.

Two important decisions were rendered in the lower federal courts. The Eighth District Circuit Court, applying the "rule of reason" of the Supreme Court, decided in June that the ownership of Southern Pacific stock by the Union Pacific Railroad was not a violation of the Sherman anti-trust law. In April, Judge Sanborn of the United States Circuit Court handed down a decision in the Minnesota rate case, which was an important event in the history of railway rate regulation. The State of Minnesota, through its legislature and its railway commission, had prescribed maximum passenger and freight rates on interstate business, which were lower than the interstate rates of the railways. A master in chancery had reported that these low rates were unconstitutional, both because they interfered with interstate commerce and because they were confiscatory in that they did not permit a fair return on the capital invested in the railways. Judge Sanborn upheld the master's opinion in the following words: "To the extent that it does not substantially burden or regulate interstate commerce, a State may regulate interstate commerce and the fares and rates therein within its border, but no further." The fair return to which the railways are entitled in the opinion of Judge Sanborn, is seven per cent. on their cost of reproduction new. The Interstate Commerce Commission in denying the Western increases held that the railways were not entitled to capitalize their unearned increment for the purpose of rate-making, but Judge Sanborn held that they were so entitled, the cost of reproduction new, which he used as a basis, including not only the original investment and the cost of improvements paid for out of earnings, but the unearned increment as well. The case was appealed to the United States Supreme Court, which had not rendered a decision by the end of the year.

ACTIVITIES OF THE INTERSTATE COMMERCE COMMISSION. The amendments to the Interstate Commerce law, incorporated in the Mann-Elkins act, passed June 18, 1910, greatly increased the labors of the Interstate Commerce Commission for the year ending December 1, 1911. Decisions were rendered in 507 formal proceedings during the year and 881 new complaints were filed. On the special docket for cases in which there was no dispute as to facts, orders were issued in 3875 cases and \$329,388 was awarded to shippers as reparation for overcharges, damages, etc. Indictments were returned against sixty-two carriers, shippers, or passengers for criminal violations of the Interstate Commerce law, and forty-two prosecutions were concluded, the aggregate fines imposed amounting to \$214,225. In January, 1911, Judson C. Clements was appointed chairman of the commission to succeed Martin A. Knapp, who was appointed presiding judge of the newly created commerce court.

COMMERCE COURT. The Mann-Elkins act of 1910 created a new judicial body known as the commerce court to review the decisions of the Interstate Commerce Commission on appeal and expedite rate cases formerly tried in the United

States circuit courts. President Taft appointed, as members of this court, Martin A. Knapp, formerly chairman of the Interstate Commerce Commission; John E. Carland, Robert W. Archbald, William H. Hunt, and Julian W. Mack. The court held its first public session in Washington, D. C., on April 3, 1911. Up to December 1 it had rendered decision in twenty-seven cases appealed from the rulings of the Interstate Commerce Commission, the most important of which was the "long and short haul" case, in which it issued an injunction restraining the commission from enforcing its orders. In all but seven of the cases heard, the court decided in favor of the railways against the contentions of the shippers. In only three cases, in which the commission sustained the shippers, did the commerce court side with the commission.

RAILROAD SECURITIES COMMISSION. Another section of the Mann-Elkins act of 1910 authorized the President of the United States to appoint a commission to investigate the propriety of federal regulation of railway stock and bond issues. In 1910 the following commission was appointed: A. T. Hadley, president of Yale University, chairman; F. N. Judson, Frederick Strauss, Walter L. Fisher, and Prof. B. H. Meyer. This commission held several hearings, at which prominent railway officials, bankers, and economists testified and its report was transmitted to Congress early in December, 1911.

The commission in its report did not attempt to draft a statute embodying its recommendations, but merely presented a summary of the points which it believed should be incorporated in amendments to the Interstate Commerce act. The principal recommendations of the commission were:

(1) That a railway engaged in interstate commerce should furnish the Interstate Commerce Commission at the time of issue of stocks and bonds with a detailed statement of the issue, the proceeds therefrom, and the uses to which the proceeds have been or are to be put.

(2) That the Interstate Commerce Commission be given broad powers and adequate means for the valuation of the physical property of railways, a fundamental though not necessarily controlling element in value being cost of reproduction.

(3) That the intercorporate holding of railway stocks and the issue of collateral trust bonds against stocks be discouraged, but not forbidden.

(4) That companies should be encouraged to incorporate with stock having no par value and that existing companies be encouraged to exchange their stock into shares without par value.

(5) That no attempt should be made to limit railway profits to a fixed percentage, or to treat a high rate of dividends as necessarily indicating extortion.

(6) That in general no limitation should be placed on the price at which bonds may be sold, but that any discount should be amortized during the life of the bonds out of income or accumulated surplus.

(7) That the Interstate Commerce Commission should have full authority to make public all information received by it concerning new financing and the complete financial operations of railways during their fiscal years.

In brief the remedy for existing abuses proposed by the commission is the fullest possible publicity of every detail of railway financing

to the end that the investing public may intelligently and accurately discriminate between the good and the bad.

TENDENCIES OF RAILWAY EARNINGS AND EXPENSES. Railway gross earnings fell off from the figures of 1910 about 5 per cent. during the first six months of the year, but by July they began to approach more nearly the figures of the previous year. Operating expenses were reduced by restricting maintenance charges and other economies, so that net earnings were only a little less than in 1910. In the last three months of the year most of the railway reports were unfavorable, some large decreases in net earnings being shown. Railway taxes continued to increase out of all proportion to new mileage. In the first quarter of the fiscal year of 1911 the average mileage increased but 1.5 per cent., while taxes rose 10 per cent. In Connecticut the railways pay nearly one-half of the State taxes. A striking indication of the retrenchment policy of the railways, following the refusal of the proposed rate increases and the general cessation in business, is shown in the reduction of the number of railway employees, as compared with the number in the service in 1910; this amounted to approximately 9 per cent. by the end of April. This reduction of force was in large part offset by general increases in wages of all classes of employees, averaging nearly 5 per cent. As the cost of labor represents about 40 per cent. of the gross earnings of the railways, the wage increases of one year amounted to a direct additional tax of 2 per cent. on the gross revenue. Near the close of the year the railways placed numerous large orders for cars, locomotives, rails, and other supplies, which had been long deferred in anticipation of a more favorable outlook.

With the exception of a general strike of shop men on the Union Pacific, Southern Pacific, and Illinois Central, which greatly hampered operation, there were no serious strikes of railway employees during the year. Several strikes were averted by granting in whole or in part the employees' demands for higher pay.

CHANGES IN RAILWAY OWNERSHIP AND CONTROL. In April, 1911, Benjamin F. Bush was elected president of the Missouri Pacific Railroad, succeeding George J. Gould. An unsuccessful attempt was made at the time completely to wrest control of the Missouri Pacific from the Gould interests. On September 28 Judge R. S. Lovett retired as president of the Harriman lines, and was succeeded by A. L. Mohler, William Sproule, Thornwell Fay, Epes Randolph, and J. D. Farrell, as presidents respectively of the Union Pacific, Southern Pacific of California, Southern Pacific of Texas, Southern Pacific of Mexico, and the Oregon-Washington Railroad & Navigation Company.

In December the New York Central acquired control of the New York, Ontario & Western from the New York, New Haven & Hartford, and in turn transferred control of the Rutland Railroad to the New York, New Haven & Hartford, which desired it for a through connection to Montreal to compete with the Grand Trunk, now a competitor in New England through control of the Central Vermont Railroad.

RECEIVERSHIPS AND FORECLOSURE SALES. The only important railway system which was forced into the hands of receivers during the year was the Wabash, which admitted its inability to meet the interest on its bonds in December. It

operates 2515 miles of track and has a funded debt of \$115,156,496, with stock outstanding to the amount of \$92,801,986. This receivership followed primarily as the result of the receiverships of the Wheeling & Lake Erie and the Wabash-Pittsburgh Terminal railroads, which had been bankrupt since 1908. Only four other small roads aggregating 91 miles of track fell into financial difficulties during the year. Thirteen roads aggregating 1386 miles of track with a total capitalization of \$40,741,453 were sold under foreclosure proceedings. Of these the most important was the International & Great Northern with 1160 miles of track.

RAILWAY FINANCING. The money market ruled easy throughout the year and a large number of railways took advantage of this condition to arrange financing for present and future needs. The number of new issues was exceptionally large and the aggregate value of the securities sold slightly exceeded \$1,000,000,000, as compared with approximately \$950,000,000 in 1910. No very large issues of securities were put out by any one company. A few issues were sold abroad. The largest single transaction of the year was the sale of \$50,000,000 of 4 per cent. collateral trust bonds by the Southern Pacific, which was also one of the few foreign issues, the bonds being disposed of in France. Several noteworthy changes in railway dividend rates occurred during the year. The New York Central & Hudson River Railroad reduced its dividend from 6 per cent. to 5 per cent., and the Boston & Maine common from 6 per cent. to 4 per cent. Denver & Rio Grande preferred, Chicago & Alton preferred, and Cleveland, Cincinnati, Chicago & St. Louis common, all of which paid dividends of from 4 to 6 per cent. in 1910, passed their dividends entirely for 1911. To offset these decreases, the Canadian Pacific dividend rate increased from 8 to 10 per cent., Norfolk & Western common from 5 to 6 per cent., and Hocking Valley from 4 to 6 per cent., while Atlantic Coast Line common paid 7 per cent., as compared with nothing in 1910. The Delaware, Lackawanna & Western paid a stock dividend of 35 per cent. in addition to regular dividends of 20 per cent.

RAILWAY CONSTRUCTION. According to statistics compiled by the *Railway Age Gazette*, a total of 3066.93 miles of new railway track were built in the United States during the year. This compares with 4121.58 miles built in 1910 and is the smallest mileage built since 1897 when only 2109 miles were constructed. The total reflects the cessation of railway improvement work resulting from adverse legislation and general dullness in business activity during the past three years. The average annual increase for the past fifteen years has been 3885 miles.

By States, Texas led with 413.78 miles and Oregon was second with 224.21 miles.

The Chicago & Northwestern built a cut-off in Wisconsin 130.55 miles long which was the longest single piece of new construction completed during the year. In Canada the Grand Trunk Pacific built 271 miles of its new trans-continental line on the western end and the National Transcontinental which is building the eastern end completed 280 miles. Other roads in Canada were also active in their construction work, the total length of new track added in the Dominion being 1899 miles, as against 1844 miles built in 1910.

The railways of the world, according to statistics compiled by the *Archiv für Eisenbahnwesen*, had an aggregate mileage at the end of 1909 of 625,698, an increase of 14,220 miles in one year. The mileage was divided by continents as follows:

Europe, 204,904; Asia, 61,800; Africa, 20,809; North America, 277,015; South America, 42,329; Australasia, 18,849 miles.

The increase in mileage since 1886 has been at an average rate of 13,600 miles per year. The total investment of capital in the world's railways is estimated at \$51,600,000,000. These figures do not include street railways or narrow-gauge industrial and light railways.

ELECTRIFICATION. In May the Boston & Maine completed the electrification of the Hoosac Tunnel in Massachusetts. The tunnel is 25,031 feet long and contains two tracks. Including the approaches and yard tracks a total of 21.31 miles of single track was equipped with overhead trolley wires carrying single-phase alternating current at 11,000 volts. All trains are now being hauled through the tunnel by electric locomotives. The New York, New Haven & Hartford made good progress on the electrification of its six-track Harlem River branch from New Rochelle to Harlem River, including the large freight yards at the latter point, a total of 178 miles of single track. In December the New Haven announced that it would begin immediately on the electrification of its main line from Stamford, Conn., the end of its suburban electric zone to New Haven, a distance of 42 miles. This will be the first actual trunk line electrification in the United States. But little progress was made toward the electrification of the railway terminals in Chicago, although the railways and the city authorities have appointed a joint board of engineers to study the question. The Southern Pacific electrified 40 miles of its suburban lines entering Oakland, Cal., across the bay from San Francisco, using the overhead trolley 1200-volt direct-current system.

CAR AND LOCOMOTIVE BUILDING. At the end of 1910 the uncertainty of the future caused the railways practically to retire from the market for new rolling stock, and the decision in the rate cases early in 1911, together with the unfavorable earnings, prevented any recovery in the equipment market. Not until the last quarter of the year did the railways begin to place orders for much-needed new cars and locomotives. For these reasons the number of cars built during 1911, as shown by statistics compiled by the *Railway Age Gazette*, is the smallest in 12 years. Only 55,931 freight cars and 3566 passenger cars were built, a total of 59,507 cars. The following table shows the number of cars built in each year since 1905:

Year	Freight	Passenger	Total
1905	165,155	2,551	168,006
1906	240,503	3,167	243,670
1907	284,188	5,457	289,645
1908	76,555	1,716	78,271
1909	93,570	2,849	96,419
1910	180,945	4,412	185,357
1911	55,931	3,566	59,507

The number of locomotives built was proportionately larger, being 3530, as compared with 4755 in 1910. The output by years since 1906 has been as follows:

Year	No.	Year	No.
1906	6,952	1909	2,887
1907	7,362	1910	4,765
1908	2,342	1911	3,530

BLOCK SIGNALS. About 4000 miles of track was equipped with some form of block signals during 1911, bringing the total up to a little more than 73,000 miles. Of this total 20,000 miles are protected with automatic signals.

RAILWAY ACCIDENTS. The casualties to passengers and employees of railways as reported to the Interstate Commerce Commission for the year ended June 30, 1911, show a large decrease from the totals for 1910, and are even lower than the number reported in 1909.

In 1911 a total of 3519 passengers and employees were killed and 60,235 were injured, as compared with 3804 killed and 82,374 injured in 1910. To these figures should be added 6438 trespassers and other persons killed and 10,687 injured. The detailed record of accidents for 1910 and 1911 is shown below:

	1911		1910	
Passengers	Killed	Inj'd	Killed	Inj'd
In train accidents.....	142	6,722	217	7,516
Other causes	214	6,711	204	6,240
Total	356	13,433	421	13,756
Employees				
In train accidents.....	633	6,775	715	6,791
In coupling accidents...	209	2,968	208	2,985
Overhead obstructions...	78	1,523	98	1,377
Falling from cars, etc...	588	13,346	588	13,196
Other causes	1,655	22,192	1,780	44,269
Total	3,163	46,802	3,383	68,618
Total passgrs. and employees	3,519	60,235	3,804	82,374

FOREIGN RAILWAYS. Outside of the United States railway development was most marked in Canada, South America, and Africa. In Europe the greater part of the construction was concerned with urban and interurban lines, often in subway, though on the Continent a few mountain roads were built, or proposed, and some notable tunnel work was prosecuted. In Asia political conditions interfered with the development projected for China, but in Africa there was a steady advance in which political necessities, as well as trade conditions, seemed to have been considered. In South America large systems were undergoing considerable development, and new construction was under way as well as planned for the future. This development was truly continental, and unquestionably will have its effect on the commercial activity of the various South American countries. In Australia there was a marked growth in railway construction, and here, too, plans of development were being prosecuted vigorously.

General progress will be found summarized in the sections on *Communications, Railways, or Transportation* in the records of the various foreign countries. See also the article on **RAILWAYS, AFRICAN**, below, and **ARBITRATION AND CONCILIATION**.

RAILWAYS. AFRICAN. Progress in railway building in the British and German colonies of Africa was marked during 1911. The Cape-to-Cairo system had been extended to 165 miles

beyond the frontier of the Belgian Congo, and in Portuguese Angola the Benguela Railway had advanced 124 miles. The German railway in Togo from Lome to Atakpame was virtually completed, and an extension to Tschiporva was being considered. The Germans were also pushing forward the Northern Railway in the Kamerun, and the Keetmanshoop-Windhoek line in Southwest Africa, which had been partly completed, was being extended to Gibeon. Lines from Buala to Manenguba Hills, and to the Njong region via Edea were being developed, and the Usambara Railroad in German East Africa was being extended beyond the length of 170 miles which had been opened during the year. The French were at work on the line from Tamatave to Brickaville in Madagascar.

The railways in British South Africa were under the amalgamated management of the government of the Union. During 1911 four of the seven lines under construction in the Cape province had been completed and in Natal three lines, aggregating 54 miles, had been completed. In the Transvaal four of the six lines of railway, amounting to 383 miles, had been opened, wholly or in part, and in the Orange Free State two lines of 35 and 59 miles were virtually completed during the year. The Standerton-Vrede line, connecting the Transvaal and the Orange Free State 46 miles in length, was reaching completion at the end of the year. The lines whose construction had been authorized in the state amounted to 110 miles in the Cape province, 103 miles in Natal, 232 in the Transvaal and 81 miles in the Orange Free State.

The construction of 85 miles of the Salisbury-Mazoe branch of the Blinkwater Railway and of 130 miles of the Rhodesia-Katanga Railway represented the most important development in Rhodesia. The Ayrshire-Lomagunda narrow-gauge railway was widened to 3 feet 6 inches, for 13 miles from Salisbury.

In Nigeria the Lagos railway to Northern Nigeria progressed and the construction had extended beyond Zungeru, but the bridges over the Niger were still unfinished. A line 100 miles in length from Zaria to the Bauchi tin mines was being built. On the Gold Coast the Accra-Mangoase line was nearly finished, while in Sierra Leone a branch line from Boia towards the Rokelle River 50 miles in length was under construction.

Egyptian railway construction included progress on the Zipthap and Zagazig line, while in the Sudan the line from Khartum which followed the Blue Nile to Senaar and then crossed the White Nile had reached El Obeid. In British East Africa the Uganda Railway started a branch from its main line at a point 282 miles from Mombasa, 93 miles westward to Soda Lake at Magadi, while in Uganda itself progress was made on the line from Jinga on Victoria Nyanza towards Kakindu.

RAILWAYS, ELECTRIC. See **ELECTRIC RAILWAYS**.

RANKIN, CATHERINE BLANCHARD. An American actress, died December 14, 1911. She was born in Philadelphia in 1847, the daughter of Loring Blanchard, who was professor of mathematics at Bowdoin College. She made her first appearance on the stage at the age of ten years as a dancer. In 1863 she appeared in the rôle of *Angelica* in the play called *The*

Secret. After playing small parts for three years she joined the stock company of the Continental Theatre in Boston and there married Arthur McKee Rankin, who was a member of the company. For many years following she appeared in plays with her husband. In 1874 she created the part of *Henriette* in the play *The Two Orphans*. Mr. and Mrs. Rankin secured the dramatic rights of Joaquin Miller's novel, *The First Families of the Sierras*, and from it made the play, *The Danites*, which was played with great success in New York and other cities in the United States. After a year on the road the play was taken to London, where it ran for one hundred nights. This play was followed by *Forty-Nine*, another successful Western play, and in 1883 Mr. and Mrs. Rankin built Rankin's Third Avenue Theatre, which was opened by Joseph Jefferson in *Rip Van Winkle*. Several years before her death Mrs. Rankin was obliged to retire from the stage on account of ill health. She was the author of several articles and reminiscences in various magazines.

RAT. See ZOOLOGY.

RATES, RAILWAY. See RAILWAYS.

RECALL. See ELECTORAL REFORM, and ARIZONA, *History*.

RECEIVERSHIPS. See RAILWAYS.

RECIPROCATING ENGINES. See BATTLESHIPS, and NAVAL PROGRESS, *Propulsion*.

RECIPROCITY, CANADIAN. See CANADA.

RECLAMATION OF ARID LANDS. See IRRIGATION.

RED CROSS, AMERICAN NATIONAL. Relief work was given during 1911 by the National Relief Board of the American Red Cross Society in the cases of the Minnesota forest fires, the Washington Place fire in New York on March 25, the disaster at the Pancoast mine at Throop, Pa., the fire in Bangor, Me., on April 30, in the troubles on the Mexican border during the progress of the revolutionary uprising in Mexico, in the heavy hailstorm in Alabama and Georgia on July 4, in forest fires in Michigan in July, in smallpox in Alaska during the summer, in the storm along the coast of South Carolina on August 27, at the breaking of the dam at Austin, Pa., on September 30, the breaking of the dam at Black River Falls, Wisconsin, on October 6, in the Mount Taal eruption in the Philippine Islands, and in the Colon (Panama) fire May 27. The total relief funds contributed during the year and expended wholly by the Red Cross amounted to \$227,013. Relief funds contributed during the year in the expenditure of which the Red Cross participated, \$28,000, and in the relief funds contributed in previous years, but in process of expenditure up to 1911, about \$455,000. The total relief expenditures of the year in the United States which were administered wholly or partially by the Red Cross amounted to about \$810,000.

The International Relief Board rendered assistance in nine foreign fields and expended a total of about \$94,000. Relief was given in the cases of the Chinese famine, the pneumonic plague in Manchuria, in relief of the Jewish cholera epidemic at Tripoli, in Mexican relief, in forest fires in Ontario, in assisting refugees from Albania, and in the Stamboul fire.

Progress was made in an attempt to raise an endowment fund of \$2,000,000. The amount already raised at the end of the year was

\$792,803, and otherwise available, \$90,047, making a total of \$882,851. The seventh annual meeting of the American Red Cross was held in Washington December 5, 1911. The officers chosen for 1910 were as follows: Honorary president, William H. Taft; vice-president, Robert W. de Forest; treasurer, A. Piatt Andrew; counselor, Hon. Frederick W. Lehmann; secretary, Charles L. Magee. Red Cross medals of merit were awarded as follows: Dr. Richard P. Strong, in recognition of his services under the Red Cross as a member of the International Commission on the pneumonic plague in Manchuria, a gold medal; to Dr. Oscar Teague, for services as Dr. Strong's assistant in this work, a silver medal; to Col. William C. Rivers, U. S. A., in recognition of his services under the Philippine Red Cross board in the relief operations after the eruption of the Taal volcano in the Philippines, a gold medal.

REDONDA. See ANTIGUA.

REED, JAMES A. United States senator (Democrat), from Missouri. He was born in Mansfield, O., in 1861 and three years later was taken by his parents to Iowa and later to Kansas City, Mo. He was educated in the public schools and at Coe College. After studying law he was admitted to the bar in 1885. In 1897 he was appointed county counselor of Jackson county, Mo., and in the following year was elected prosecuting attorney. He resigned that office in 1900 to become mayor of Kansas City. In 1902 he was reelected to fill this office. He was delegate-at-large from Missouri to the Democratic national convention in 1898. On November 8, 1910, he was nominated by the Democrats for United States senator in a statewide primary election, and defeated his closest competitor, David R. Francis, by more than 29,000 votes. He was elected to the United States Senate by the legislature to succeed Senator William Warner. His term of office will expire in 1917.

REEDER, WILLIAM HERBON. A rear-admiral, retired, of the United States navy, died January 24, 1911. He was born at Muscatine, Ia., in 1848 and graduated from the United States Naval Academy in 1867. He rose through various grades to that of captain in 1902 and in 1907 was retired as rear-admiral. He saw active service during the Civil War in the summer of 1863. He was on duty on various assignments afloat and ashore and in 1894 commanded the naval brigade in the railroad strike at Oakland, Cal. He was executive officer of the *Charlestown* in Luzon and Japan during the Chinese-Japanese war. In 1904 he was on duty at the Naval War College, and in 1904-5 commanded the *Alabama*. He was commandant of the navy yard in New York in 1896-7, and commanded the *Hancock* until his retirement on June 30, 1907.

REENFORCED CONCRETE. See CONCRETE.

REFORM, MUNICIPAL. See MUNICIPAL GOVERNMENT.

REFERENDUM. See ELECTORAL REFORM.

REFORMATORIES. See PENOLOGY.

REFORMED CHURCH IN AMERICA (DUTCH). A Protestant religious denomination composed originally of settlers from Holland, but now largely intermixed with elements from many other sources. It was known until 1867 as the Reformed Protestant Dutch Church of North America. The first church organization

of the denomination was established in 1628. According to the reports rendered to the general synod in June, 1911, the total number of communicants in the denomination was 117,288, with 689 churches and 750 ministers. The Sunday schools numbered 775, with a total enrollment of 118,687. Contributions received during the year for denominational objects were \$402,466, and for other objects, \$105,861. There were received for congregational purposes, \$1,615,727, making a total of all contributions of \$2,242,741. Foreign missions are sustained by the church in China, India, Japan, and Arabia. The church building fund has charge of the aid for the erection of new churches. Other funds supported by the denomination are the disabled ministers' fund and the widows' fund. There are three theological seminaries, the New Brunswick Seminary at New Brunswick, N. J., the Western Seminary at Holland, Mich., and the Arcot Theological Seminary at Vellore, India. The denomination sustains two colleges, Rutgers College at New Brunswick, N. J., and Hope College at Holland, Mich. The official organs are *The Christian Intelligencer*, published in New York City, *The Leader*, published in Holland, Mich., and *De Hope*, published in the Dutch language. There are in addition many missionary and departmental publications. The church has a board of education which furnishes aid to educational institutions and to young men studying for the ministry. Its legislative bodies consist of the general synod, four particular synods, and thirty-six classes. The synods meet annually, the classes semi-annually.

REFORMED CHURCH IN THE UNITED STATES (GERMAN). This denomination, known also as the German Reformed Church, had in 1911 297,116 communicants, 1730 churches, and 1226 ministers. There are 8 district synods and 59 classes, corresponding to the presbyteries in Presbyterian bodies. In the Sunday schools of the denomination are 235,000 scholars and about 25,000 teachers. Mission work is carried on in practically the entire United States and portions of Canada. Foreign missions are also carried on in Japan and China. The denomination maintains the Eastern Theological Seminary at Lancaster, Pa., the Central Theological Seminary of the Reformed Church in the United States at Dayton, O., and a mission house for training missionaries at Cheboygan, Wis. The leading collegiate institution under the denominational auspices is Franklin and Marshall College. Heidelberg College at Tiffin, O., is also under the control of this denomination. Colleges for women are maintained at Frederick, Ind., and at Allentown, Pa.

REFORMED EPISCOPAL CHURCH. An Episcopal church of historic orders organized in 1873 in New York City by members of the Protestant Episcopal Church who were opposed to the growth of sacramentarianism and sacerdotalism, and who made the separation in order that they might continue to worship after the historic orders of the English Reformation. There were in 1911 9610 communicants, 80 churches, and 94 ministers. Work is carried on among the colored people in South Carolina. At the head of the church are six bishops. Foreign missions are carried on in India. The theological seminary of the denomination is in Philadelphia. The official organ is *The Episcopal Recorder*, published in Philadelphia.

REFORMED PRESBYTERIANS. The general name given to several religious bodies of Presbyterian doctrine, founded by members of the Covenanted or Reformed Presbyterian Church of Scotland. Included in the title are the Synod of the Reformed Presbyterian Church of North America, the Reformed Presbyterian Church in North America, General Synod, the Reformed Presbyterian Church, Covenanted, and the Reformed Presbyterian Church in the United States and Canada. The largest of these bodies is the Synod of the Reformed Presbyterian Church of North America. It includes about 10,000 communicants, with about 100 churches and 125 ministers. In the Reformed Presbyterian Church of North America, General Synod, there were about 3700 communicants, 27 churches, and 22 ministers. The other two bodies are small. The general synod maintains a theological seminary at Philadelphia and a college at Cedarville, O. It sustains a mission in northern India.

REFORM OF BANKING. See BANKS AND BANKING.

REFUSE DISPOSAL. See GARBAGE AND REFUSE DISPOSAL.

REID, WILLIAM MAX. An American journalist and author, died November 27, 1911. He was born at Amsterdam, N. Y., in 1839 and was educated at the Amsterdam Academy. He entered the mercantile business early in life and in addition to this devoted himself largely to historical research. He was the author of *St. Anne's Church and Queen Anne's Chapel* (1897); *The Mohawk Valley: Its Legends and Its History* (1902); *The Terrible Mohawk* (1904) and *The History of Old Fort Johnson* (1906). He also contributed to many journals on historical subjects.

RELATIVITY. See PHYSICS.

RELIGION, BOOKS ON. See LITERATURE, ENGLISH AND AMERICAN; and PHILOLOGY, CLASSICAL.

RELIGIOUS DENOMINATIONS. The most important events in the history of the individual denominations will be found under the title of the denominations in their proper alphabetical order. Incorporated below are the general results of the statistics gathered by Dr. H. K. Carroll, and printed in the *Christian Advocate*, New York. Although these figures show but a small increase in the growth of the denominations, it is somewhat greater than the increase of 1910. These figures show that there were in 1911 221,197 churches with 35,836,190 communicants. The total increase for 1911 was 1990 ministers, 2832 churches, and 594,366 communicants. In the case of various denominations, no statistical information is obtainable. This is true of the Christian Scientists and of the Christian Catholic Church, otherwise known as the Dowie Movement. The Disciples of Christ furnished no returns for 1911. The Methodist Episcopal Church shows the largest absolute increase among Protestant denominations. The Presbyterian Church, North, falls below 1 per cent., and the Protestant Episcopal Church barely reaches 2 per cent. The net increase during the decade ending with 1910 was about 786,000 a year for all denominations. The table at the top of page 604 gives the number of communicants in each denomination in 1911 and in 1890.

Denominations	Rank in 1911	Communi- cants	Rank in 1890	Communi- cants
Roman Catholic	1	12,556,612	1	6,231,417
Methodist Episcopal	2	3,234,822	2	2,240,354
Regular Baptist (South)	3	2,304,724	4	1,280,066
Methodist Episcopal, South	4	1,892,454	5	1,209,976
Regular Baptist (Colored)	5	1,799,222	3	1,348,989
Presbyterian (Northern)	6	1,340,310	7	788,244
Disciples of Christ	7	1,308,116	8	641,051
Regular Baptist (North)	8	1,211,426	6	800,450
Protestant Episcopal	9	947,320	9	532,054
Lutheran Synodical Conference	10	780,938	12	357,153
Congregationalist	11	741,400	10	512,771
African Methodist Episcopal	12	620,234	11	452,725
African Methodist Episcopal Zion	13	547,216	13	349,788
Lutheran General Council	14	467,495	14	324,846
Latter-day Saints	15	850,000	21	144,352
Lutheran General Synod	16	309,702	20	164,640
Reformed (German)	17	297,829	15	204,018
United Brethren	18	291,461	16	202,474
Presbyterian (Southern)	19	287,174	18	179,721
German Evangelical Synod	20	253,890	17	187,432
Colored Methodist Episcopal	21	234,721	24	129,382
Spiritualists	22	200,000	39	45,030
Methodist Protestant	23	183,318	22	141,989
Greek Orthodox (Catholic)	24	175,000	138	100
United Norwegian Lutheran	25	170,088	26	119,972
United Presbyterian	26	136,850	27	94,402
Lutheran Synod of Ohio	27	131,923	33	69,505
Reformed (Dutch)	28	117,288	28	92,970
Evangelical Association	29	109,506	23	123,313
Primitive Baptist	30	102,311	25	121,347
Dunkard Brethren (Conservative)	31	100,000	35	61,101

RELIGIOUS MOVEMENTS. The notable success of the Laymen's Missionary Movement, which since 1909 has held conventions throughout the country, continued during 1911. A series of training institutes were held during the year. In these instruction was given to men who expressed a willingness to canvass for money for missions. A series of conventions was held in Canada. The reports of the missionary societies of the various churches showed greatly increased work during the year, which is attributed largely to this movement.

The following summary of the Protestant foreign missions, taken from the *Almanac* of the American Board of Commissioners for Foreign Missions, shows the number and distribution of missionaries throughout the world in 1911:

Countries	Stations ²	Men and women	Native laborers	Com' cants	Added 1911	Under instruction	Income in dollars
United States	12,935	6,013	30,507	802,596	81,825	389,726	10,707,711
Canada	461	509	796	18,582	1,061	6,969	563,998
Great Britain and Ireland	17,907	6,614	38,413	615,514	25,585	725,501	8,316,679
Continental Europe	6,854	3,145	11,506	489,484	23,767	299,793	3,001,160
Totals	38,157	16,281	80,771	1,962,176	142,238	1,421,989	22,589,548

¹ 1910 summary. ² And out-stations.

Men and Religion Forward Movement. One of the striking features of the religious world in 1911 was the remarkable success of this movement which has been in active progress since May, 1910. Since the early autumn of that year a committee of 100 business and professional men have been at work in each of 76 cities of the United States and Canada, making preparations for an eight-day campaign to be conducted by specialists in religious work. The movement is under the direction of Fred B. Smith, who for many years has been the head of the religious works department of the international committee of the Young Men's Christian Associations. With him works a committee of 97 members, selected from almost every State in the Union. The general plan of the movement is an effort to arouse to activity laymen in local churches all over the country. To

bring this about there was gathered together a company of about 30 men, including evangelists, and men who have proved their ability to work with boys, and in other special lines of activity, including social service. At the close of the year work had been carried on in South Bend, Ind., Louisville, Ky., Cedar Rapids, Ia., Minneapolis, Minn., Dallas, Tex., Des Moines, Ia., Columbus, O., and Detroit, Mich. The executive secretary of the movement is the Rev. Roy B. Guild.

RELIGIOUS EDUCATION. See **UNIVERSITIES AND COLLEGES** and **EDUCATION**.

REMAN. See **FEDERATED MALAY STATES**.

REPRESENTATION, PROPORTIONAL. See **BELGIUM, FRANCE, and SWITZERLAND**, under **History**.

RESERVE ASSOCIATION, NATIONAL. See **BANKS AND BANKING**.

RESERVOIRS. See **AQUEDUCTS, DAMS, and IRRIGATION**.

REUNION, or ROUBRON. An island in the Indian Ocean; a French colony, with an area of 965 sq. miles and a population in 1911 of 173,822. Capital, St. Denis, with 25,689 inhabitants. Sugar-cane is the most important uroduct; other crops are vanilla, tobacco, manioc, coffee, cacao, and spices. Imports (1909), 13,233,483 francs; exports, 16,351,853. Chief exports: Sugar, 39,500 tons; rum 874,438 gallons; coffee, 120 tons; tapioca, 4649 tons; vanilla, 30½ tons. Railways (end of 1909), 78 miles; telegraph lines, 206. In 1909, 87 vessels of 169,326 tons entered, and 88 of 171,679 tons cleared. The budget for 1911 balanced at 4,125,000 francs; French expenditure (budget of

1911), 2,128,000, inclusive of 1,999,000 for railway and harbor. Governor (1911), M. Rodier.

ST. PAUL (7 sq. kilometers), AMSTERDAM (66 sq. k.), and KERGOULEN (3414 sq. k.), are attached administratively to Réunion.

REVENUE. See paragraphs on FINANCE, in articles on countries and States of the United States.

REYES, GEN. BERNARDO. See MEXICO, History.

RHEINLAND. See BATTLESHIPS.

RHIZOTOMY, DANA'S OPERATION. The operation of dividing and resecting certain sensory nerve roots, at the point of their emergence from the spinal canal. It was first devised by C. L. Dana of New York, for whom Abbe of New York operated in December, 1888. It was devised with the object of relieving the chronic spasm or stiffness of groups of muscles in certain types of paralysis, as well as pain, pain reflex, and athetosis. Of late the procedure has been practiced widely for the relief of the pains of locomotor ataxia and the "gastric crises" in that disease. A certain proportion of the latter cases are relieved permanently or temporarily, but the operation is somewhat uncertain in its effects in the present stage of its development, and many failures to relieve spasm are reported. It is improperly called "Foerster's operation" in Germany, as that physician of Breslau first advocated it in 1908. Tramonti also claims priority for his countryman, Mingazzini of Rome, but the latter first recommended it in 1899. See Abbe, in *Medical Record*, February 9, 1899; also in *Medical Record*, March 4, 1911.

RHODE ISLAND. POPULATION. The Thirteenth Census showed a population in 1910 of 342,610, compared with 428,556 in 1900, an increase of 26.6 per cent. in the decade, compared with an increase of 21 per cent. for the entire United States. Rhode Island is the most densely populated of any of the States. There were in 1910 508.5 people per square mile, compared with 400.7 in 1900. The principal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Providence, 224,326 (275,537); Pawtucket, 51,622 (39,231); Woonsocket, 38,125 (28,204); Newport, 27,149 (22,111); Warwick, 26,629 (21,316); Central Falls, 22,754 (17,167).

AGRICULTURE. The Thirteenth Census, taken in 1910, includes statistics of agriculture. These statistics are of date April 15, 1910. According to these figures the number of all farms in the State on that date was 5292, as compared with 5498 on June 1, 1900. The land in farms amounted to 443,308 acres. The improved land in farms was 178,344 acres. The average number of acres per farm was 83.8. The total value of farm property was \$32,990,739. The average value per farm with its buildings and equipment was \$6234. Of all the farms in the State 4338 were operated by owners and managers and 954 by tenants. Of the farms operated by persons owning all or part of the land, those free of mortgage numbered 2811 or 70.4 per cent.; those mortgaged numbered 1180. Of those owning and operating farms 4408 were native whites; 843 were foreign-born whites, and 41 were negroes and other non-whites. The value of the various kinds of domestic animals and poultry in 1910 was \$3,276,472, as compared with a value in 1900 of \$2,593,659. The cattle numbered 34,148 valued at \$1,309,088; horses and colts, 9547,

valued at \$1,424,177; mules, 63 valued at \$11,155; swine, 14,038, valued at \$123,647; sheep and lambs, 6789, valued at \$32,637. The total number of fowls of all kinds was 415,209, valued at \$368,018. The acreage, production, and value of the principal crops in 1910 and 1911 are given in the following table:

		Acreage	Prod., bu.	Value
Corn	.....1911	11,000	495,000	\$470,000
	1910	10,000	400,000	332,000
Oats	.....1911	2,000	58,000	34,000
	1910	2,000	70,000	34,000
Potatoes	..1911	5,000	550,000	583,000
	1910	5,000	680,000	469,000
Hay	.....1911	61,000	61,000	1,470,000
	1910	63,000	74,000	1,450,000

MINERAL PRODUCTION. The value of the mineral products of the State in 1910 was \$800,503. The principal products are stone and mineral waters.

EDUCATION. The school population in the State between the ages of 5 and 15 in 1911 was 105,230. The enrollment in the public schools in the same year was 70,966. The total number of teachers was 2371. The average salary paid to men teachers per year was \$1297.15, and to women teachers, \$587.01. The total expenditure for public schools was \$2,486,756. Education in Rhode Island has been characterized in recent years by the same growth, enterprise, and achievements as have characterized its economic and social order. There has been a lively response in the State to leading educational movements. During 1911 perhaps the most signal advance was the provisions for the health of school children. In 1911 a law was passed providing for medical inspection of schools, and also providing for State aid for the same. The year was also marked by a substantial increase in the State's appropriation for educational purposes. As a rule, in Rhode Island, the State contributes financial support to nearly every educational interest. The educational system of the State has some peculiar features of its own. Among the most recent gains previous to 1911 were the system of teachers' pensions (supported wholly by the State), the minimum teachers' salary law; establishment of the Rhode Island School for the Feeble-minded, and the system of traveling libraries.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the State prisons and almshouses, the Sockanossett School for Boys, the Oaklawn School for Girls, and the State Hospital for the Insane. The buildings were completed in 1910 for the State Hospital and for the Sockanossett School for Boys.

POLITICS AND GOVERNMENT

The legislature, which meets annually in Rhode Island, failed to enact new taxation measures which were recommended and failed to provide the revenue necessary for many of its appropriations. As a consequence the week following adjournment Governor Pothier vetoed bills passed by the assembly that carried appropriations of \$467,674. This was the first important use of the veto power, which has been possessed by the governor of Rhode Island only two years.

On January 18 the legislature elected Henry F. Lippitt, of Providence, to succeed Nelson W.

Aldrich as United States senator. Mr. Aldrich had declined to be a candidate for reelection on the expiration of his term. Mr. Lippitt is a cotton manufacturer who has never held a public office before, though both his father and his elder brother have been governors of Rhode Island. It was a three-cornered contest for the senatorship, Mr. Lippitt on the final ballot receiving 72 votes, Judge LeBaron B. Colt of the United States Circuit Court, another Republican, receiving 23 votes, Judge Arthur L. Brown of the United States District Court, Democrat, receiving 44 votes.

The State was one of the few in which elections for State officers were held in 1911. The Democrats nominated for governor Lewis A. Waterman of Providence, while Governor Aram J. Pothier was renominated for the fourth term by the Republicans. On November 7 Governor Pothier was reelected by a plurality of 7394, the total vote being Pothier 37,969 and Waterman 30,575. Republicans also carried the general assembly by increased pluralities, electing 33 members in a Senate of 38, and 71 members in a House of 100. For the first time a Socialist was elected to the Rhode Island assembly, but he was chosen in a district where there was a three-cornered fight and his election was consequently less significant. The chief Republican issue in the campaign was the demand for a new system of taxation, doing away with the present unsatisfactory general property tax, and the chief Democratic issue was the abolition of a property qualification which prevents a registered voter who does not pay taxes on property from casting a ballot for city or town councilmen. The Democrats opposed a constitutional amendment providing biennial elections which was approved by a vote of 27,149 in favor, with 14,176 in opposition. A constitutional amendment in Rhode Island requires a three-fifths vote of the electorate in approval, and the vote on this amendment means that beginning in 1913 there will be biennial elections in Rhode Island.

There was a close municipal election in the city of Providence, where Henry Fletcher, Republican, was reelected for a fourth term, receiving 12,269 votes, as against 12,174 for Alderman Joseph H. Gainer, Democrat, a plurality of only 95.

OTHER EVENTS. The most notable commercial event in the State within the year was the completion of the plans of the entrance into Providence of the Southern New England Railroad, a branch of the Grand Trunk, whose route for a new line from Providence to Palmer, Mass., giving through connections with Canada and the West, has been approved.

RHODESIA. An inland South African territory; a British protectorate. The Zambezi River divides the country into Northern and Southern Rhodesia; both are administered by the British South Africa Company.

SOUTHERN RHODESIA covers about 144,000 sq. miles, and includes the two provinces of Matabeleland (capital, Bulawayo) and Mashonaland (capital Salisbury). European population 1907, 14,018; census of 1911, 23,582; natives (1907), 662,786. Bulawayo had (1911) 5200 white inhabitants; Salisbury, 3479. Cereals and vegetables are cultivated; tobacco, rubber, and cotton are indigenous. Gold output in 1910, 609,956 oz. (623,388 oz. in 1909). Silver, lead, copper, coal, chrome ore, asbestos, diamonds, etc., are mined. Total value of gold mined from 1890

to October 31, 1910, £16,583,359; silver, £131,028; copper, £23,058; lead, £68,089; wolframite, £5972; chrome iron, £212,669; coal, £423,293; diamonds, £31,050; other precious stones, £8063; scheelite, £4958; asbestos, £6095. Total imports (1910), £2,786,321 (mdse., £2,425,821; of which £506,318 came by way of the Cape, and £1,171,280 through Beira). Exports, £2,801,811 (gold, £2,531,341; gold concentrates, £66,535; chrome ore, £100,633; tobacco, £31,596).

RAILWAYS. Total length of railways (end of 1910), 2334 miles. There are two main systems—the Rhodesia Railways (1393 miles, with sidings), and the Mashonaland Railway (547). The Rhodesia system includes the following sections: Vryburg to Bulawayo, 588 miles; Bulawayo to Salisbury, 301; Bulawayo to Victoria Falls, 280; Victoria Falls to Kalomo, 94; Bulawayo to West Nicholson, 103; Gwelo to Selukwe, 24. Sections of the Mashonaland Railway: Umtali to Salisbury, 170; Kalomo to Broken Hill, 281; Salisbury to Ayrshire, 84; Banket Junction to Eldorado, 12. Branch lines: Lyndhurst Halt to Umvuma, 50 miles; Westacre Junction to the Matopos (the grave of Cecil Rhodes), 9; Ayrshire line to the Mazoe district, 22. A line has been built from Broken Hill to the Congo border (132 miles) and an extension into the Belgian Congo to the Star of the Congo mine (about 167 miles north of the Rhodesian frontier) has been completed. Miles of telegraph and telephone lines under control of the administration (December 31, 1909), 3017; of wires, 6513.

Estimated administrative revenue (1910-11), £671,000 and £708,686. Administrator for the company (1911), Sir W. H. Milton.

NORTHERN RHODESIA, hitherto divided into North-Eastern (109,000 sq. miles) and North-Western Rhodesia (Barotseland) (182,000 sq. miles), was constituted by the order in council of May 4, 1911, a single British sphere, with an area of 291,000 sq. miles and an estimated population in 1911 of about 1,000,000, including 1424 Europeans. The amalgamation went into effect August 17, 1911. Barotseland had (1910) imports and exports amounting to £236,359 and £143,457 respectively. The native king, Lewanika, resides at Lealui. Administrator for the company (1911), L. A. Wallace, at Livingstone.

RHODES SCHOLARS. See **UNIVERSITIES AND COLLEGES.**

RICE. The rice crop is so extensively grown in countries which publish no statistics with reference to it, that accurate data regarding the world's crop for any one year are not at hand. China is estimated to produce over one billion bushels annually. In 1911 Egypt, Italy, Japan, Spain, and the United States produced about 438,000,000 bushels. The Asiatic crop was largely reduced as a result of dry weather and floods in parts of Burma, Siam, and Indo-China. The trade estimated that the supplies available for export from Burma on account of the reduced production would be about 500,000 tons short. In the United States the rice supply of 1910 was sold out before the crop of 1911 came upon the market. The year in the principal rice-growing sections of the United States was marked by too much moisture at planting time, drouth during the growing season, and rainy weather when the crop was harvested and threshed. The late rains reduced the quality in many sections and well demonstrated the



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value of drainage or water control. The production of the country reached 22,934,000 bushels from 696,300 acres, as compared with a yield of 24,510,000 bushels from 722,800 acres in 1910. Among the ten rice-growing States Louisiana led with a yield of 11,639,000 bushels, followed by Texas with 8,174,000 bushels, Arkansas with 2,792,000 bushels, and South Carolina with 117,000 bushels. The greatest advance in acreage took place in Arkansas, where the area increased from 60,000 acres in 1910 to 71,600 acres in 1911. In South Carolina the area was decreased by 7000 acres and in Texas by 26,500 acres. The average yield per acre for the entire country was 32.9 bushels.

RICE, POLISHED. See **BERIBERI**.

RICHARDS, ELLEN HENRIETTA. An American sanitary chemist and educator, died in April, 1911. She was born at Dunstable, Mass., in 1842, and graduated from Vassar College in 1870. She carried on post-graduate courses at the Massachusetts Institute of Technology until 1873. In 1875 she married Robert Hallowell Richards. From 1876 to 1884 she was instructor in the woman's laboratory and from 1884 to the time of her death was professor of sanitary chemistry at the Massachusetts Institute of Technology. She conducted many important researches with reference to safety from spontaneous combustion in the use of oils. She was also a specialist in water analysis. Among her published writings are *Chemistry of Cooking and Cleaning* (1882), re-written in 1907; *Food Materials and Their Adulteration* (1886), re-written in 1906; *The Cost of Living* (1899); *Air, Water and Food* (1900); *The Cost of Food* (1900); *The Art of Right Living* (1905); *Sanitation in Daily Life* (1907) and *Industrial Water Analysis* (1909).

RICHTER, HANS. See **MUSIC**.

RINDERPEST. See **VETERINARY SCIENCE**.

RIO GRANDE FEVER. See **MALTA FEVER**.

RIO NEGRO. See **EXPLORATION**.

RIVADAVIA. See **BATTLESHIPS**.

ROAD BUILDING. See **PAVEMENTS AND ROADS**.

ROBERT-FLEURY, TONY. A French painter, died December 8, 1911. He was born in 1838 and was a pupil of Paul Delaroche and Léon Cogniet. In 1870 he won the Grand Medal for the "Last Day of Corinth." This was afterwards selected to illustrate French art in the Luxembourg as well as in the Universal Exposition of 1878. Among other well-known works from his hand are "The Old Women of the Piazza Navona, Rome" (1867), "Danaides" and "The Musical Cardinal."

ROBERTSON EDMUND, 1st BARON LOCHEE OF GOWRIE (1908). An English publicist, died September 14, 1911. He was born in 1845 and was educated at St. Andrews and at Corpus Christi College, Oxford. He was appointed a fellow of Corpus Christi in 1872. From 1892 to 1895 he was civil lord of the admiralty and was secretary to the admiralty from 1905 to 1908. He was a student of American affairs and wrote *American Home Rule*. He also contributed numerous articles on legal and constitutional subjects to the *Encyclopædia Britannica*.

ROBERTSON, PETER. An American dramatic critic and writer, died August 9, 1911. He was born in Vale of Leven, Scotland, in 1847 and was educated in Glasgow. As a young man

he engaged in the mercantile business. He spent several years in China and Japan and in 1875 settled in California, where he engaged in land and mining enterprises. In 1875 he began writing dramatic criticism and from 1881 to 1906 was dramatic critic for the *San Francisco Chronicle*. He was the author of several plays given by the Bohemian Club of San Francisco. He also wrote the book for two comic operas. He was the author of *Bunders* (1875) and of *The Seedy Gentleman* (1902).

ROBIE, EDWARD DUNHAM. A rear-admiral, retired, of the United States navy, died June 7, 1911. He was born in Burlington, Vt., in 1831. He was educated at private schools and at the Binghamton, N. Y., Academy. He was appointed an assistant engineer in the United States navy in 1852 and was promoted through various grades, and retired on account of age with the rank of commodore in 1893. He was advanced to the rank of rear-admiral, retired, by Congress in 1906 for creditable record in the Civil War. In 1852-55 he circumnavigated the globe on the flagship *Mississippi* on Commodore M. C. Perry's Japan expedition. He erected and operated the first line of telegraph ever seen in Japan and instructed the Japanese in building and operating the first steam railways. On his return to the United States he took part in the expedition to capture filibusters in Nicaragua, and in laying the first electric cable from Ireland to the United States in 1857, when the cable broke. He was chief engineer of the *Mohican* at the capture of the forts at Port Royal, S. C., in 1861 and was a member of the board which designated the first floating dry dock in the United States navy. He was fleet engineer of the combined fleets at Key West, Fla., during the trouble with Spain over the *Virginia* in 1874, and in the Spanish-American war he selected and fitted out many vessels for the auxiliary naval force. He was chief engineer of the Norfolk navy yard from 1874 to 1877 and from 1887 to 1891. He also held this position at the Boston navy yard and at the New York navy yard, and served as president of the American Society of Naval Engineers.

ROBINSON, WILLIAM CALLYHAN. An American educator, died November 7, 1911. He was born in Norwich, Conn., in 1834 and graduated from Dartmouth College in 1854. He studied at the General Theological Seminary, graduating in 1857. In the same year he was ordained to the Protestant Episcopal ministry, and served during the following year as a missionary at Pittston, Pa. In 1859 he was chosen rector of St. Luke's Church, Scranton, Pa., remaining there until 1862. In 1864 he was admitted to the bar, and from 1865 to 1895 practiced at New Haven. He was appointed dean of the Law School of the Catholic University of America in 1895 and held that position until the time of his death. From 1869 to 1895 he was lecturer and professor of law at Yale University. He served for two years as judge of the City Court of New Haven and as judge of the Court of Common Pleas of New Haven county from 1874 to 1876. In 1874 he was a member of the Connecticut House of Representatives. He was the author of *Life of Ebenezerariah Kelly* (1855); *Notes of Elementary Law* (1876); *Elementary Law* (1882, revised edition, 1909); *Law of Patents* (1890); and *Elements of American*

Jurisprudence (1900). He also contributed articles on legal subjects to periodicals. He edited the *Mirror of Justice* in 1903.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. This institution was founded in 1901 by gifts made for the purpose by John D. Rockefeller, who pledged himself to give \$200,000 for the support of the institute during a period of ten years. The first work of the institute was begun in 1904, when a small building was leased and a simple equipment for research in pathology, physiology, and chemistry was established. The first investigations were conducted under the direction of Dr. Simon Flexner, who had been elected director of the laboratories of the institute in 1902. As the result of further gifts by Mr. Rockefeller, a new site for the institute was purchased in 1904. In the two years succeeding, a laboratory building, animal house, and power house were erected. These were formally opened on May 11, 1906. In the following year the work of the institute was placed on a permanent basis by a gift from Mr. Rockefeller of \$2,620,610 as an endowment. During the same year plans for the erection of a hospital were completed. This was opened on October 17, 1910. Its total cost, including buildings and equipment, was \$900,000. At the time of the opening of the hospital another gift of \$3,650,000 was received from Mr. Rockefeller. The institute is composed of the laboratories and the hospital.

The principal event in the progress of the Institute for Medical Research during the year 1911 was the completion of the first year of the operation of the new hospital, which was opened in the autumn of 1910. The hospital selects a small number of diseases for study, and admits only those cases which embody the aspects of those diseases which are most conducive to fruitful observation, while receiving treatment under the most favorable conditions. The permanent endowment of the institute was increased by a gift from Mr. John D. Rockefeller of about \$925,000, making the total endowment of the institute a little more than \$7,000,000, exclusive of buildings and equipment. The institute is divided into two main departments—the laboratories, of which Dr. Simon Flexner is the director, and the hospital, of which Dr. Rufus Cole is the director. The laboratories are divided into departments of pathology and bacteriology, physiology and pharmacology, chemistry, experimental biology, and experimental surgery. The diseases thus far studied at the hospital include pneumonia, infantile paralysis, certain types of heart disease, syphilis, scarlet fever, and certain cases of disturbed metabolism. The funds of the institute are applied almost entirely to the work carried on in its own buildings, but a limited number of small grants are made to investigators in different parts of the world. Appointments to the staff of the institute are ordinarily made only as vacancies occur. The full time of all members of the staff is engaged by the institute for purposes of research. They therefore offer no instruction to students, and do not engage in private practice. Board, treatment, and all other services rendered by the hospital to patients are free, and no pecuniary interest is retained by the institute in any discovery or invention made by members of its staff. See INFANTILE SPINAL PARALYSIS.

ROCKS, RADIOACTIVE PROPERTIES OF. See GEOLOGY.

RODGERS, C. P. See AERONAUTICS.

RODRIGUES. A dependency of Mauritius (q. v.).

ROLLAND, ROMAIN. See LITERATURE, ENGLISH AND AMERICAN, *Fiction and Literary Biography*; and FRENCH LITERATURE.

ROMAN CATHOLIC CHURCH. The most important event in the history of the Roman Catholic Church in 1911 was the creation by a consistory held in September of seventeen new cardinals, including three American cardinals. The Americans who became cardinals were Archbishop Farley of New York, Archbishop O'Connell, and Monsignor Falconio, apostolic delegate to Washington, who, although an Italian by birth, is a naturalized American citizen. In addition to the cardinals created at the consistory of 1911, a number of other American dignitaries were confirmed. These included Rt. Rev. George W. Mundelin, Vermont, as auxiliary bishop to the Bishop of Brooklyn; Rt. Rev. John J. Nilan, Bishop of Hartford; Rt. Rev. Edmond F. Prendergast, Archbishop of Philadelphia, and the Rt. Rev. John Baptist Gorordo, Bishop of Cebu, Philippine Islands. Other dignitaries, American and Canadian, confirmed were the following: James J. Keane, Archbishop of Dubuque; Pius Dowling, Archbishop of Port of Spain; Joseph Koudelka, Auxiliary Bishop of Milwaukee; John M. Laval, Titular Bishop of Hierocæsarea and Auxiliary Bishop of New Orleans; Joseph Schrembs, Bishop of Toledo, Ohio; Peter J. Muldoon, Bishop of Rockford, Ill.; John Farrelly, Bishop of Cleveland; Edmund M. Dunne, Bishop of Peoria, Ill.; John Stariha, Titular Bishop of Antipatris; James O'Reilly, Bishop of Fargo, N. D.; Joseph J. Rice, Bishop of Burlington, Vt.; John G. Lawler, Auxiliary Bishop of St. Paul, Minn.; John W. Shaw, Coadjutor Bishop of San Antonio, Tex.; Denis O'Donaghue, Bishop of Louisville, Ky.; Joseph Petrille, Bishop of Lipa, Philippine Islands; John B. McGinley, Bishop of Nueva Cáceres, Philippine Islands; Thomas F. Lillis, Coadjutor Bishop of Kansas City; Vincent Wehrle, Bishop of Bismarck, N. D.; Timothy Corbett, Bishop of Crookston, Minn.; Joseph F. Busch, Bishop of Lead, S. D.; Charles Currier, Bishop of Lamboanga, Philippine Islands; Maurice P. Foley, Bishop of Tuquegarao, Philippine Islands; Joseph Chartrand, Coadjutor Bishop of Indianapolis; John Ward, Bishop of Leavenworth; Edward P. Kelly, Auxiliary Bishop of Detroit; J. H. Tihen, Bishop of Lincoln, Neb.; Fergus P. McEvay, Archbishop of Toronto; Neil MacNeil, Archbishop of Vancouver; Charles H. Gauthier, Archbishop of Ottawa; Paul E. Roy, Titular Bishop of Eleutheropolis and Auxiliary Bishop of Quebec.

The cardinals confirmed by the consistory were, in addition to the American cardinals mentioned above, the following: Francis Bourne, Archbishop of Westminster, England; Giuseppe Maria Cos y Macho, Archbishop of Valladolid, Spain; Antonio Vico, Papal Nuncio to Spain, an Italian; Gennaro Granito di Belmonte, Archbishop of Edessa, Italian; Francis Bauer, Archbishop of Olmütz, Austrian; Leone Adolfo Amette, Archbishop of Paris; Francis Virginio Dubillard, Archbishop of Chambéry, France; Francis Nagl, Archbishop of Vienna; Francis Maria Rovérié de Cabrières, Bishop of Mont-



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THREE AMERICAN CARDINALS OF 1911

FARLEY

FALCONIO

O'CONNELL

Taken in the garden of the American College in Rome after the Public Consistory of November 30th, at which they were made Princes of the Church

pellier, France; Gaetano Bisleti, Papal major domo, Italian; Giovanni Battista Lugari, assessor of the congregation of the holy office, Italian; Basilio Pompili, secretary of the congregation of the council, Italian; Ludovico Billet, French Jesuit; Guglielmo van Rossum of the Fathers of the Resurrection, Dutch; Enriquez Almaraz y Santos, Archbishop of Seville, Spain.

An important and interesting event in the history of the church in the United States during the year was the celebration of the fiftieth anniversary of the consecration of Cardinal Gibbons as a priest, and the twenty-fifth anniversary of his elevation to the cardinalate. These anniversaries were celebrated in Baltimore in June. The presence of men of the highest official station and distinction gave the event national significance and importance. President Taft was present and made an address, and Vice-President Sherman, Chief Justice White, Champ Clark, Speaker of the House of Representatives, Theodore Roosevelt, and others took part in the celebration.

THE DECREE OF NE TEMERE. A decree issued by the Pope declaring marriages invalid which had been entered into by Catholics unless contracted before a parish priest or ordinary of the place where they were performed created much feeling in Canada. As a result of this decree the Archbishop of Montreal annulled a marriage of Roman Catholics solemnized by a Protestant clergyman. The case at issue was that of a citizen of Canada who, in 1908, was married by a Methodist minister of Montreal. Both persons married were Roman Catholics. This union was dissolved by the archbishop on the ground that it was not solemnized by a priest. The persons in question took the matter into the courts, which sustained the action of the archbishop. The case on appeal went to the King's Privy Council. The Anglican Primate of Canada declared in connection with the case that no Canadian law should permit a marriage to be annulled because it was contrary to the canon law of the Church of Rome. To this the Roman Catholic vice-chancellor of the Archdiocese of Montreal replied that it seemed to be forgotten in certain quarters that it was in virtue of a treaty that Canada was ceded to Great Britain, that in this treaty there were conditions guaranteeing to Catholics full, complete, and absolute liberty in religious matters. These rights, he said, had been maintained in the various constitutions since drawn up. He affirmed that it was useless to protest against the action of the church in claiming certain rights in connection with marriage as a sacrament. The church, he said, would continue to pass laws regarding marriage, and if the church came into conflict with the legislation prevailing in certain countries, she is not to blame.

THE CHURCH IN FOREIGN COUNTRIES. An account of the efforts to bring about a separation of the church and state in Portugal will be found in the article on PORTUGAL under *History*.

The Eucharistic Congress in 1911 was held in Madrid, June 25 to 29. The session was brought to a close by an imposing procession through the streets of Madrid. For an account of Spain's difficulty with the Vatican, see SPAIN, *History*. See also GERMANY, and FRANCE, under *History*.

CHURCH STATISTICS. According to the official Catholic Directory at the close of 1910, there were in the United States at that time a Roman Catholic population of 14,618,761. The churches numbered 13,461 and the clergy 17,084, of whom 4434 were religious and 12,650 were secular. The hierarchy of the church was composed of 4 cardinals, 13 archbishops, and 97 bishops. The seminaries numbered 82, with 6969 students; the colleges for boys, 225; academies for girls, 696, and parishes with schools, 4972, with a total attendance of 1,270,131, scholars. The missionary, educational, and philanthropic work of the church is carried on by various religious orders, including brotherhoods and sisterhoods.

ROMANCE PHILOLOGY. See PHILOLOGY, MODERN.

RÖNTGEN RAYS. See PHOTOTHERAPY.

ROOSEVELT, THEODORE. See UNITED STATES, *Campaign of 1912*.

ROOSEVELT COMMISSION ON COUNTRY LIFE. See AGRICULTURE.

ROOSEVELT DAM. See ARIZONA.

ROSS, E. A. See LITERATURE, ENGLISH AND AMERICAN, *Travel and Contemporary History*.

ROTARY CONVERTERS. See DYNAMO-ELECTRIC MACHINERY.

ROTHSCHILD, GUSTAV SAMUEL JAMES, Baron. A Jewish financier and philanthropist, died November 28, 1911. He was born in Paris in 1829 and was one of the family of four brothers, descendants of the famous Rothschild brothers, who laid the foundation of the great fortune which made the name such a power in the financial history of Europe. The father of these brothers was Baron James Rothschild, the head of the Rothschild banking house in France, who established relations with the tobacco growers in the United States and built up a lucrative business. By the time Gustav and his older brother, Mayer Alphonse, had succeeded to their father's business, these relations had ceased, although they still retained large holdings of American securities. The brothers became producers in rubber and gold and other metals in various parts of the world. They inaugurated a great fleet of their own and established their own warehouses in many ports. During the joint headship of Baron Mayer and Baron Gustav, the French house was the capital of the Rothschild domain. It was said that his power in political affairs was almost absolute. He could make or stop wars by the lifting of a finger or with the stroke of a pen. The terms of the crushing indemnity exacted by Prussia after the humiliation of France in the Franco-Prussian War was credited to the house of Rothschild. After the death of Baron Mayer Rothschild in 1905, Gustav continued to represent the head of the French house, although in later years the domination shifted first to Vienna and then to London. He was honorary consul-general of Austria at Paris and administrator of the Northern Railroad of France, and the Paris, Lyons and Mediterranean line. He was a chevalier of the Legion of Honor.

ROUVIER, MAURICE. A French public official, former prime minister, died June 7, 1911. He was born at Aix-en-Provence in 1842 and was educated at the lycée in Marseilles. He was called to the bar, but preferring business became connected with a grocery concern, of which he soon was made a member. At the same time

he contributed to democratic papers. In 1876 he was elected to the Chamber of Deputies from Marseilles. Then began his national career. He joined the Extreme Left and devoted himself to financial, commercial, and naval questions. He was active in the support of Gambetta. While holding the office of secretary of the Chamber he was charged with immorality. He was, however, acquitted at a trial held at his own request. In 1881 he was made minister of commerce and of colonies by Gambetta. In 1885 he failed of election in Marseilles and removed to the department of Alpes-Maritimes, where he was successful. In 1887 he was made president of the council (premier) and minister of finance. The chief feature of his administration was the substitution of General Ferron for General Boulanger as minister of war. There followed soon after disclosures as to traffic in decorations of the Legion of Honor brought against President Grévy and members of his cabinet. The president endeavored to save himself by throwing over his cabinet, but its resignation was followed by his own. Rouvier returned to office six months later as minister of finance under Premier Tirard, a post which he continued to hold under three successive premiers. Under the last of these, Ribot, he had held office for only a few days when the Panama scandals burst forth. He admitted that he had asked certain financiers to assist the state in time of great stress. He was censured by the Chamber and was prosecuted, but not convicted. After his retirement from office he continued to serve as a member of the commission of the budget. In 1902 he was again made minister of finance by Combes. His first venture was the conversion of the total funded debt of France from $3\frac{1}{2}$ to 3 per cent. loans. He also introduced an income tax. In 1905 he became prime minister for the second time, but in the following year resigned.

ROWING. The outcome of the annual intercollegiate regatta held on the Hudson River, near Poughkeepsie, in 1911, ended another chapter in the wonderful rowing history of Cornell. Since 1895 the crews representing Cornell in the eight-oared varsity event have finished first twelve times. Pennsylvania and Syracuse have each won twice, and Columbia once. In the 1911 regatta Cornell, for the third successive year, captured the chief prize. Columbia made an excellent showing, and for the fifth time in her history finished second. Pennsylvania was third, Wisconsin fourth, and Syracuse last.

The Cornell crew consisted of C. H. Elliott, bow; E. S. Bates, 2; B. A. Lum, 3; W. O. Kruse, 4; G. B. Wakely, 5; W. G. Distler, 6; C. B. Ferguson, 7; and E. F. Bowen, stroke. The winners' time for the four miles was 20 minutes, 10 $\frac{1}{2}$ seconds. The record for the event, 18 minutes, 53 $\frac{1}{2}$ seconds, was made by Cornell in 1901. The times of the other crews in the 1911 varsity eight oars follow: Columbia, 20:16 $\frac{1}{2}$; Pennsylvania, 20:33; Wisconsin, 20:34; and Syracuse, 21:03 $\frac{1}{2}$. In the varsity four-oared event (2 miles) Cornell also finished first, with Syracuse second, Columbia third, and Pennsylvania fourth. No time was taken. Columbia won the eight-oared freshmen race, covering the two miles in 10 minutes, 13 $\frac{1}{2}$ seconds. Cornell was second, in 10:20 $\frac{1}{2}$; Syracuse third, in 10:23 $\frac{1}{2}$; Pennsylvania fourth, in 10:24 $\frac{1}{2}$, and Wisconsin last, in 10:38.

Harvard for the fourth year in succession was triumphant over Yale in the annual races held on the Thames River, near New London, Conn. The Cambridge crews, however, failed to make a clean sweep of the events as they had done in 1909 and 1910. Harvard won the varsity eight oars and four oars, while Yale captured the freshman eight-oared event. Harvard's time in the varsity eight oars was 22 minutes, 44 seconds, or more than two minutes and a half slower than Cornell's on the Hudson. The winning crew comprised G. H. Balch, bow; G. F. Stratton, 2; G. P. Metcalf, 3; A. M. Goodale, 4; L. Withington, 5; A. S. Strong, 6; R. W. Cutler, 7; and G. F. Newton, stroke. Yale's time was 23 minutes, 41 $\frac{1}{2}$ seconds. In the four-oared event Yale made a much better showing, but both crews rowed in very slow time—Harvard in 15:37 $\frac{1}{2}$ and Yale in 15:52. The freshman eight-oared race was the most exciting of the three, Yale winning in 11:53. The Harvard youngsters' time was six seconds slower.

Several other college races were held during the year. Cornell defeated the Harvard eight over a two-mile course on Lake Cayuga, and also beat both Yale and Princeton on Carnegie Lake. Pennsylvania defeated Yale at Springfield, Mass. Annapolis defeated Pennsylvania and Syracuse, but lost to Columbia. In the West the University of Washington defeated the University of California.

The thirty-ninth annual regatta of the National Association of Amateur Oarsmen was held at Saratoga. The members of the Argonaut Boat Club of Toronto easily proved their superiority by capturing six of the thirteen events. The Argonauts took first place in the senior eights and fours, the quarter-mile dash, single sculls, intermediate eights, and association singles. E. B. Butler was the individual star of the Argonauts, capturing three races, the quarter-mile dash, association singles, and championship singles. The international fours were won for the second successive year by the Arundel Boat Club of Baltimore. The intermediate fours went to the Detroit Boat Club and the senior double sculls were won by G. W. Engle and S. F. Gordon of the Vesper Boat Club of Philadelphia.

The ninth annual regatta of the National Rowing Association, popularly known as the American Henley, took place on the Schuylkill River, over a course 1 mile, 550 yards long. The winners of the main events were: First four-oared shells, University Barge Club of Philadelphia; junior collegiate eight oars, Cornell University; first single sculls, E. T. Hoffman, Jr., of the University Barge Club. In the forty-fifth annual regatta on the Harlem River the senior eight-oared shells were won by Columbia University, the international eight oars and junior eight oars by the New York Athletic Club, and the intermediate single sculls by M. C. Doyle of the Hudson Boat Club.

Magdalen College, Oxford, for the second successive year, won the Grand Challenge Cup in the Henley Regatta held on the Thames, England. Eton College captured the Ladies' Plate event, and W. D. Kinnear of Kensington the diamond sculls race.

The sixty-eighth annual Oxford-Cambridge regatta was won for the third successive year by Oxford, whose time for the four miles—18:29—established a new record. The old record—18:47—was made by Oxford in 1893 and equaled

by Cambridge in 1900. R. Arnst of New Zealand, who won the professional sculling championship in 1908, retained his title in 1911 by defeating Harry Pearce of Sydney over the Pararamatta course (3 miles). Arnst's time, 19:46, excelled all former records.

ROYAL ACADEMY. See PAINTING.

ROYAL COMMISSION ON TUBERCULOSIS. See TUBERCULOSIS.

RUBBER. The rubber industry in 1911 passed through a year with little of unusual moment. In England the capitalization of new companies formed was but \$6,899,000, as compared with \$38,841,500 in 1910 and \$12,008,000 in 1909. The formation of companies for such colonial undertakings on such large scales, aside from the speculative side, lent increased interest to the consideration of future supplies of India rubber. In Germany estimates were made that by 1916-17, when the areas planted previous to 1911 would become productive, the world's output of plantation rubber would reach 110,000 tons. To this must be added about 65,000 tons of wild rubber, so that a gross supply more than twice the production of 1910, as indicated by the accompanying table, would be available. Now the natural increase in consumption was but 10 per cent. per annum, so that by 1916 the normal consumption would only be about 110,000 tons. Great increases were anticipated from the East Indies and at the present growth of plantations in Ceylon and the Malay Peninsula conservative estimates place the annual production at 60,000 tons of rubber by 1916. In fact by that time the annual increase from this region should amount to some 15,000 tons per annum. Thus in 1911 Malaysia exported 19,081,269 pounds, as compared with 7,693,409 pounds. Such activity in Asia naturally threatened South American supremacy and this was realized fully in Brazil. Towards the end of 1911 a special parliamentary commission appointed to take measures for the defense of the Brazilian rubber industry against foreign competition and local dangers submitted its report, including the draft of a proposed law for adoption by the federal government and applicable to the entire republic as distinguished from a mere state measure. It proposed the reduction or abolition of the export duties, the improvement of transportation facilities, the encouragement of commerce, and the attraction of labor and its maintenance at points distant from the coast. The export duties were to be reduced one-half in annual stages of 10 per cent. and new railway line and river transport improvements were proposed, while immigrant barracks and supply depots were to be built and articles intended for consumption in the rubber industry were to be exempted from duty. Surveys of plantations were to be made and titles were to be conferred. Various bonuses on new plantations, replantations, factories, and plantations for food supplies were proposed. With certain modifications the scheme was enacted into law at the December session of the Brazilian National Congress. The measure attracted much favorable comment in the rubber industry.

The relative importance of the various rubber-producing countries is shown in the official table at top of next column (compiled by the government of Pará, Brazil):

	1909	1910
	Tons	Tons
Federal Territory of Acre.....	10,500	11,565
State of Amazonas.....	10,700	10,464
State of Pará.....	11,400	10,267
State of Matto Grosso.....	2,200	2,300
Island of Cajuelro (Plauhy).....	150	200
Republic of Peru.....	2,700	2,495
Republic of Bolivia.....	2,300	2,486
Republic of Venezuela.....	34	25
Republic of Colombia.....	6	18
Total South America.....	39,990	39,980
Central America.....	5,000	5,000
East Africa.....	5,460	4,200
West Africa.....	15,500	14,800
Ceylon and Malaysia plantations...	4,050	8,200
Total tons.....	70,000	73,000
Imports into U. S.	1911	1910
Pará, excluding Caucho.....	15,892	14,896
Central East Indies, Africa and Ceylon.....	19,196	18,020
	1910	1909
	14,896	17,591
	18,020	13,538

Average prices in New York for Pará rubber:

	Up river	Islands	Cameta
	Fine	Coarse	Fine
1911	118%	95	110%
1910	201%	136%	183%
1909	159%	107	149%
			64
			90
			100
			77

Statistics of Pará rubber for three years follow (in tons):

	1911	1910	1909
World's visible supply Dec. 31, tons.....	5,852	3,891	2,358
Pará receipts July 1 to Dec. 31.....	14,635	13,400	14,970
Pará receipts of caucho July 1 to Dec 31.....	1,760	2,370	1,840
Afloat from Pará to U. S. Dec. 31.....	1,300	435	916
Afloat from Pará to Europe Dec. 31.....	720	1,080	700

The manufacture of rubber as distinguished from its production continued to prosper during 1911. Practical substitutes failed to come into widespread use and the demand for motor tires and other purposes continued. Should increased supplies of rubber result in lower prices it was quite evident that many new uses would be found. The condition of the industry in the United States as reported by the census of manufactures is summarized in the following table:

	1909	1904
Cost of materials used.....	\$122,745,102	\$ 80,002,476
Salaries	7,840,700	4,538,912
Wages	25,136,976	20,084,166
Misc. expenses	16,360,993	11,303,336
Prin. elements of cost.....	\$172,083,771	\$115,928,890
Estimated difference....	25,310,867	89,086,501
Selling value of products	\$197,394,638	\$155,015,391
Capital	162,144,564	98,979,636

The rubber trade in Germany in 1911 enjoyed a fairly prosperous year and there were employed 27,238 hands, of whom 18,555 were men whose average wages per week was 24.19 marks, as compared with 13.07 marks for the women. See CHEMISTRY, INDUSTRIAL.

RUMANIA. A constitutional monarchy, composed of the Moldo-Wallachian provinces and the territory of the Dobruja. Capital, Bucharest.

AREA AND POPULATION. Area, 50,720 sq. miles.

Population (1899), 5,956,900; estimated at end of 1910, 6,966,002. Births (1910), 273,108 (1909, 282,342); deaths, 172,843 (188,325); still-births, 7441 (7617); marriages, 64,286 (63,212). Bucharest had (1910) 293,435 inhabitants; Jassy, 79,402; Galatz, 66,216.

EDUCATION. Primary instruction is compulsory, and educational conditions are steadily improving. A special census in 1909 returns 60.16 per cent. of the population as unable to read or write, against 78 per cent. in 1899; of the army recruits, 43.12 per cent. in 1909 and 41 per cent. in 1910 could neither read nor write. State-supported primary schools in 1909-10, 5074 (4900 in 1908-9), with 7780 (7667) teachers, and 584,953 (560,649) pupils. Secondary schools (1906-7), 64, with 17,050 pupils. Total boys in secondary, professional, industrial, and agricultural institutions, 19,280; girls, 6016.

The Greek Orthodox is the national church.

AGRICULTURE, ETC. Of the 5,974,798 hectares under cultivation in 1908, 5,133,459 were under cereals, 36,228 under textile and oleaginous plants, 90,022 under legumes and tubers, 110,240 under grasses and forage crops, 428,474 natural pasture, 70,267 plum orchards, 86,337 vines, 19,771 industrial plants.

In the following table are shown the area (in hectares) under chief crops and the yield (in thousands of quintals) for 1910 and 1911 (1911 yield preliminary), with the yield per hectare in 1910:

	Hectares		1000 quintals		Qs.
	1910	1911	1910	1911 p.h.	
Wheat	1,948,217	1,930,164	30,162	26,033	15.5
Rye	173,861	131,796	1,945	1,266	11.2
Barley	549,391	507,201	6,441	5,686	11.7
Oats	446,760	401,415	4,463	4,016	10.0
Corn	1,986,259	2,085,167	27,800	31,277	14.0
S. beets	13,318	13,603	3,081	2,250	231.4
Vines*	88,277	85,860	1,713	1,250	19.4

* Yield in hectoliters of must.

The table below gives the area in acres (a) and the yield in bushels (bu.) of several cereal crops for the three years next preceding (from the report of the minister of agriculture and domains):

Year	Wheat	Barley	Oats	Rye
1907 (a.)	4,236,100	1,259,500	871,000	362,400
" (bu.)	42,257,000	20,062,000	17,842,000	2,554,000
1908 (a.)	4,452,000	1,532,500	1,211,600	363,400
" (bu.)	54,813,000	12,873,000	17,212,000	2,640,000
1909 (a.)	4,173,000	1,357,100	1,197,200	337,200
" (bu.)	56,751,000	19,955,000	25,945,000	3,090,000

Under colza in 1909 69,146 acres (527,170 bu.); under flax, 12,173 (72,389 bu. seed); under sugar-beets, 11,406.

Area under forests, 2,759,930 acres, divided as follows: 1,069,703 state; 125,985 communal; 1,492,841 private; 71,401 domain and crown.

Livestock (December, 1900): 864,324 horses, 2,589,528 cattle, 5,655,444 sheep, 232,515 goats, 1,709,205 swine. The number of cattle and sheep has steadily declined since 1900.

Silk-worm culture and fishing are carried on. The petroleum industry is important; the output in 1910 was 1,352,300 tons, against 1,297,000 in 1909. Coal is mined.

COMMERCE. Imports and exports (1909) were valued at 366,748,000 and 443,858,000 lei respectively. Imports of metals were valued at 86,912,210 lei; textiles, etc., at 65,633,620; wool, hair, etc., 31,471,995. Exports: Cereals, etc.,

357,587,891 lei; petroleum, etc., 36,268,546; wood and timber, 29,445,651.

Germany supplied (1909) imports and received exports valued at 124,637,000 and 26,604,000 lei respectively; Austria-Hungary, 85,786,000 and 115,030,000; Great Britain, 57,736,000 and 34,650,000; France, 23,677,000 and 27,502,000; Italy, 17,677,000 and 33,998,000; Belgium, 11,620,000 and 121,297,000; Turkey, 11,607,000 and 21,474,000; Russia, 10,780,000 and 4,129,000; Netherlands, 5,360,000 and 49,491,000.

Vessels entered (1910), 36,727, of 11,028,482 tons; cleared, 36,729, of 11,058,707. Merchant marine (January 1, 1911): 94 steamers, of 22,893 tons; 478 sailing vessels and boats, of 144,618 tons.

COMMUNICATIONS. Length of railways in operation September 1, 1910, 3755 kilometers (state, 3473); telegraph lines (1909-10) 7651 kms.; wires, 19,311; officers, 3096. Telephone lines, 1292 kms. urban (wires, 16,243), and 32,824 interurban (50,035). Post offices, 2970.

The European Commission of the Danube, with headquarters at Galatz, is independent of the Rumanian government, and has sovereign powers within its territory. A resident executive committee exercises executive authority. Receipts in 1909, 3,616,790 lei; expenditure, 2,847,400. There has been no debt since 1887. Vessels cleared at Soulina in 1910, 1307, of 2,274,493 tons (English, 461, of 1,039,493).

FINANCE. The unit of value is the leu, worth 19.3 cents. The revenue and expenditure (including railway and other budgets) for three successive years are given in lei below:

	1909-10	1910-11*	1911-12*
Revenue	458,886,905	461,079,942	478,395,230
Expenditure	417,966,070	461,079,942	478,395,230

* Estimate.

Revenue from public services (1911-12), 120,366,600 lei; indirect taxes, 75,900,000. Expenditure for the department of finance, 200,964,965 lei; public works, 85,300,876; war, 69,278,668. Debt, April 1, 1911, 1,579,728,904 lei.

ARMY. The application of the law of March 29, 1908, on the organization of the army, modified as it was by the law of April 15, 1910, came up again in 1911, as this law defined the state of the various contingents from November 1, 1910. In accordance with it the active army is formed from all men between the ages of 21 and 28 years, two years being spent with the colors and four years on leave, except for the cavalry, where three years are spent with the colors. Men from 28 to 38 serve in the reserve, and the militia is composed of men from 38 to 42 years, and the territorial forces of men from 42 to 46 years. Young men from 19 to 21 years of age will be summoned each year from April 1 to November 30, two Sundays a month, for a session of three hours at most, under the control of the garrison commandants. The instruction of the auxiliaries or *schimbul*, made up of the more educated classes, will be for the first year (21 years of age) from December 1 to March 31, every Sunday and holiday, two sessions of three hours each for instruction.

The effective force for 1911-12, as provided by the budget, was as follows: Infantry, 50,561; permanent cavalry, 7772; artillery, 13,137; engineers, 3542; medical, 727; navy, 4962; outside cadres, 2741; troops of other departments,

firemen, gendarmes, 5161; reëngaged, chief sergeants, 3148; and pupils of the military schools, 856, making a total of 89,670.

NAVY. The navy consisted in 1911 of 31 vessels, of 6004 aggregate tons, the more important as follows: One protected cruiser of 1320 tons, a training-ship of 350, 7 gunboats, 6 coast-guard vessels, a screw dispatch boat (240 tons), 6 first- and 2 second-class torpedo boats. In addition there are 12 naval police boats, with 8 vedettes. Personnel, 143 officers, 2176 men.

GOVERNMENT. A king (1911, Charles I.) is the executive, aided by a cabinet of eight members. The legislative body is composed of a senate and a chamber of deputies. The council of ministers, as composed January 10, 1911, was as follows: Premier and Minister of Finance, P. P. Carp; Interior, Al. Marghiloman; Foreign Affairs, T. Majoresco; Worship and Instruction, C. C. Arion; Agriculture and Domains, J. N. Lahovary; Justice, M. G. Cantacuzene; Public Works, B. Delavrancea; War, N. Filipescu; Commerce and Industry, D. S. Nenitzesco.

HISTORY. On January 10, the Bratiano ministry having retired, a new ministry was constituted under the presidency of M. Carp. On January 23 the chamber was dissolved and the elections were fixed for March 1. They resulted in an overwhelming majority for the Conservative government, the Liberal chief, M. Bratiano, being defeated in his own district. The long-standing disputes between the Conservative Democratic party and the Conservative party now in power seemed to stand a chance of reconciliation and negotiations to that end were undertaken in the hope of simplifying political conditions, but proved unavailing owing to the inability to agree on important points, such as the dissolution of parliament and the revision of the constitution.

RURAL SCHOOLS. See EDUCATION.

RUSSELL, WILLIAM CLARK. An English writer of sea stories, died November 8, 1911. He was born in New York in 1844. His father was Henry Russell, the well-known song writer. He was educated at private schools and became an apprentice in the English merchant service at the age of 13. He made many voyages to all parts of the world. A dispute with the captain over a trifling matter, which resulted in his arrest, decided him to end his career as a sailor. He entered the office of a stock broker, but the work wearied him and he began to write. His first production was a five-act tragedy in blank verse, *Fra Angelo*. This was produced at the Haymarket Theatre, London, and proved a failure. He followed this with a three-volume novel, which was rejected by many publishers. He became a contributor to the *London Review* at the same time working on the *Newcastle Chronicle*. His first successful book, *The Wreck of the Grosvenor*, established his reputation as a writer of sea stories. This was followed by *John Holdsworth, Chief Mate, A Sailor's Sweetheart, The Frozen Pirate, The Lady Maud*, and other novels. He put into his books many of the experiences of his life on the sea. In addition to his novels he wrote a *Life of Lord Nelson* and a *Life of Lord Collingwood*. For many years before his death he was a great sufferer from rheumatism. Many of his books were written at the expense of much physical suffering. He did not allow this to influence his writings and his novels are full of a cheerful optimism.

RUSSELL, WILLIAM HEPBURN. An American lawyer and politician, died November 21, 1911. He was born at Hannibal, Mo., in 1857, and was educated in the high and commercial schools of that city. After serving on the staffs of several newspapers he was admitted to the bar in 1882. For two years following he was city attorney of Hannibal and then removed to Indiana, where he was appointed general attorney for the Louisville, New Albany & Chicago Railroad. In 1887 he removed to Chattanooga, Tenn., where he remained until 1895. He removed to New York in that year and began the practice of law in that city. He engaged in politics and became affiliated with Tammany Hall. A disagreement with Richard Croker, however, resulted in his leaving that organization in 1897. He took an active part in the political campaigns in New York City and was in great demand as a political orator. He served as commissioner of accounts under Mayor Low. After the departure of Mr. Croker from the leadership of Tammany Hall, Mr. Russell rejoined that organization, but again left it in 1909, as the result of the nomination of William J. Gaynor for mayor. He was the author, with William B. Winslow, of *Russell and Winslow's Syllabus Digest of the United States Supreme Court's Reports*.

RUSSIA. An empire of eastern Europe and northern Asia, lying between the Baltic and the Bering seas and extending from central Europe and Asia to the Arctic Ocean. Capital, St. Petersburg.

AREA AND POPULATION. In the table below are given the area, and the population for 1907 and 1910:

	Sq. miles	1907	1910
European Russia	1,862,524	111,279,500	118,690,600
Poland	49,018	11,138,700	12,123,200
Ciscaucasia	85,201	4,464,800	5,039,600
Trans-Caucasia ..	95,402	6,199,100	6,695,600
Siberia	4,786,730	6,893,900	8,220,100
Steppes	710,905	2,856,100	3,282,100
Turkestan	400,770	5,856,400	6,250,500
Trans-Caspian Province	213,855	405,500	440,800
Finland	125,784	2,925,300	3,069,300
Internal waters...	317,486	.....	.....
Total	8,647,657	152,009,300	163,807,700

Population of Russia, exclusive of Finland, in 1910 160,748,400 (80,475,000 males and 80,273,400 females); of the empire, including Finland (3,059,300), Bokhara (1,500,000), and Khiva (800,000), 166,107,700. The population is made up, in the order named, of Aryans, Uralo-Altays, Jews, Georgians, other Caucasians, Chinese, Japanese, Koreans, Hyperboreans, and others. See FINLAND, BOKHARA, and KHIVA for further details respecting those countries.

Marriages (1905) in European Russia, 839,986; births, 4,819,155; deaths, 3,410,509. Emigration into Siberia in 1910, 352,950; 1909, 707,463; 1908, 758,812; 1907, 572,579; total emigration to Siberia 1896-1910, 3,969,943.

St. Petersburg had (1910) 1,907,708 inhabitants; Moscow, 1,481,240; Warsaw, 855,900; Odessa, 478,900; Kiev, 446,800; Lodz, 395,670; Riga, 324,720; Kharkov, 219,600; Saratov, 198,600; Vilna, 186,200; Kishinev, 118,610; Minsk, 109,300 (all in European Russia); Baku, 217,900; Tashkent, 192,000; Tiflis, 188,400; Khokand, 112,800; Tomsk, 105,620; Omsk, 90,200;

Vladivostok, 90,160; Irkutsk, 85,860; Batum, 32,700 (all in Asiatic Russia).

EDUCATION AND RELIGION. Education in Russia is imperfectly developed; on an average out of every 1000 only 211 are literate. The state provides and maintains the following categories: Universities, normal schools, seminaries and institutes, gymnasias, *realschulen*, urban and district schools, parochial schools, and special technical institutes of all grades. Primary schools are provided either by the local authorities or by private persons. The table below gives the number of schools of all kinds by great divisions of the empire, with pupils, male and female, on January 1, 1908 (a, European Russia; b, Poland; c, Cascaucasia; d, Trans-Caucasia; e, Siberia; f, Central Asia; g, Finland):

	Schools No.	Number of pupils		
		Male	Female	Total
a	82,983	3,760,940	1,672,572	5,433,512
b	6,649	253,814	131,423	414,839
c	2,554	143,590	61,951	205,544
d	2,493	100,410	29,020	129,430
e	4,846	160,786	75,950	240,784
f	9,100	153,644	43,119	197,376
g	4,467	94,779	84,990	217,849
Total		4,667,913	2,099,028	6,766,941

To provide for the education of Jewish children, whose attendance at the general schools is severely restricted to a small percentage of the whole, the government has established special schools, far too few and inadequately maintained (less than 200, with an average of 113 pupils each). Private Jewish schools (*kheders*) are reported to number 14,740, with 202,000 pupils. Universities: Moscow (2), St. Petersburg, Kiev, Kharkov, Yuriev or Dorpat, Warsaw, Kazan, Odessa, Tomsk and Saratov.

Of the total (1897) creedal population, 69.3 per cent. (all Russians, Rumanians, most Kartvelians, and some Turko-Tatars and Finns) belong to the Greek Orthodox Church; 11.7 per cent. (the majority of Turko-Tatars, and Caucasus mountain tribes) are Mohammedans; 9.1 per cent. (Poles and Lithuanians), Roman Catholics; 4.1 per cent., Jews; 2.8 per cent. (Finns, Germans, Letts, etc.), Protestants. The emperor is the head of the Greek Church in Russia; the Procurator of the Holy Synod has, under the emperor, practically unlimited authority. Of the Jews in Russia, 93.9 per cent. are restricted to the "pale"; 4 per cent. in European, and 2.1 in Asiatic Russia reside without the "pale." The pale covers about 362,000 sq. miles—a little under 20 per cent. of European Russia, a little over 4 per cent. of the empire.

AGRICULTURE. In European Russia 74.9 per cent. of the people are engaged in agriculture; in the Caucasus, 78.8; Siberia, 80.2; Central Asia, 82.8; Poland, 56.6. European Russia produces 89.83 per cent. of the total wheat crop, 96.7 per cent. of the rye, 98 of the barley, 92 of the oats, and practically all of the corn crop. The area in European Russia proper divided among peasant proprietors averages about 33.75 acres each. Out of a total of 102,935,619 desiatines (1 desiatine=2.7 acres) under private ownership at the beginning of 1909, 26,812,251 belonged to the peasants, 49,361,865 to the nobles, 16,093,974 to merchants, etc. To the crown, churches, etc., belonged 154,689,573 desiatines additional; and to corporations, 15,778,677.

The peasant, prospered by the abundant harvests of 1909 and 1910, is beginning to expend money for agricultural implements; and the Peasants' Land Bank, by furnishing loans with which to buy up-to-date equipment, is stimulating agricultural development. The coöperative associations are also an important economic factor.

The area and production of the great cereal crops are given below according to official reports (annual averages 1906-8, 1909, and 1910):

	1000 acres			1000 bushels*		
	1906-8	1909	1910	1906-8	1909	1910
a	15,578	15,202	15,819	182,780	206,831	248,000
b	46,359	49,506	55,223	345,714	569,114	527,000
c	71,780	70,443	69,635	735,564	883,739	854,000
d	1646	1,418	1,393	16,771	12,181	13,000
e	25,013	26,703	28,443	347,775	473,524	458,981
f	45,690	46,205	47,334	852,895	1,144,243	1,045,990
g	2,499	3,802	3,660	61,008	39,906	77,607
h	.....	3,415	5,326	45,738	53,503	57,677

a Winter wheat; b spring wheat; c winter rye; d spring rye; e barley; f oats; g corn; h buckwheat.

* Bushels of 60 pounds wheat, 56 pounds rye and corn, 48 barley and buckwheat, 32 oats.

Yield of millet, 1906-8 annual average, 87,166,000 bu.; 1909, 125,135,000; 1910, 120,135,000. Potatoes, 1906-8, 1,082,585,000 bu.; 1909, 1,200,766,800; 1910, 1,339,072,800. Sugar-beets, 1909, 6,800,000 tons. Area (1910) under flax, 3,887,259 acres; under hemp, 2,601,036; tobacco (1909), 156,576; under cotton (in Central Asia), 687,000.

Expressed in hectares and thousands of quintals, figures are given below for acreage under great crops in 1911, as compared with 1910, and yield for the two years (1911 preliminary), together with the yield per hectare in 1910. E.=European Russia (63 governments), A.=Asiatic Russia (10 governments).

	Hectares		1000 quintals		Qs. p.ha.
	1910	1911	1910	1911	
Wh. E.	25,331,233	25,738,744	190,348	121,662	7.5
Wh. A.	3,427,370	4,092,273	20,760	17,000	6.1
Rye E.	27,847,247	28,668,593	214,309	188,571	7.7
Rye A.	905,811	974,308	6,078	5,000	6.7
Bar. E.	11,227,200	11,369,412	98,739	87,362	8.8
Bar. A.	280,716	353,394	2,214	2,180	7.9
Oats E.	17,361,109	17,240,423	140,250	115,089	8.1
Oats A.	1,792,727	2,014,926	11,575	9,509	6.5
Corn E.	1,469,014	1,597,710	19,605	20,811	13.3
Corn A.	8,590	9,063	108	92	12.6
S. beets*	657,808	774,082	132,442	131,625	20.3

*Including Asiatic Russia.

Under forest in the entire empire, 1,822,500,000 acres; in European Russia proper, 474,000,000 acres; Finland, 50,500,000; Poland, 6,700,000; Caucasus, 18,600,000. The government owns 65 per cent. of the total forests of the empire; 23 per cent. is owned by the landed proprietors, and 9 per cent. by the peasantry. The value of the timber industry to the government as a source of revenue is shown by the receipts—70,000,000 roubles in 1910.

Dairy-farming has made rapid progress. The export of butter was in 1897, 529,000 poods (36 lbs.=1 pood); in 1907, 3,638,000; in 1909, 3,540,000 (value, 48,404,000 roubles). In 1909, 23,472,658 great hundreds (of 120) of eggs were exported. Large quantities of poultry are shipped to neighboring countries. Livestock

(1909): 32,114,000 horses, 48,491,000 cattle, 79,562,705 sheep and goats, 12,651,298 swine. See also article AGRICULTURE.

MINING AND METALS. In proportion to the vast mineral wealth of the empire, the mining industry is insufficiently developed. The absence of practicable roads, the necessity for the importation of most of the requisite machinery, difficulties in the way of exploitation due to the great distances to be traversed and the lack of transportation facilities, together with want of organization and equipment and the government's disinclination to encourage foreign enterprise, combine to prevent adequate progress.

In 1907, 304,588 persons were reported as engaged in mines and quarries. The production in 1907 was as follows: Gold, kilos, 31,118; platinum, kilos, 5301; silver, kilos, 2141; lead, tons, 512; zinc, tons, 9955; copper, tons, 13,037; pig-iron, tons, 2,773,000; iron and steel, tons, 2,364,000; coal, tons, 24,537,000; petroleum, tons, 7,675,000; salt, tons, 1,836,000. Ninety per cent. of the world's supply of platinum comes from Russia. The 1909 output of copper, 18,130 tons, is the highest recorded; the total consumption for the year was 21,565 tons. Russia will soon be independent of imports for her copper. In spite of the presence of enormous coal deposits, the coal industry has steadily declined, owing, it is claimed, to the return by the railroads to the use of liquid fuel. The 1910 output from the Donetz Basin, where cholera has prevailed, was estimated at only 14,012,903 tons; in the Urals, to about 580,234 tons. Further unofficial figures for 1910 place the asbestos output at 24,406,776 pounds, silver, 284,126 ounces; platinum, 12,045 pounds; copper, 49,804,416 pounds; petroleum from the Baku district, 7,717,742 tons, and the total output of the empire 9,193,458 tons; salt, 287,270 tons; iron-ore from the Donetz Basin, 4,359,677 tons. Pig-iron (1909), 175,295,000 poods; worked iron and steel, 160,034,000 poods.

MANUFACTURES. Total number of manufacturing under state supervision January 1, 1910, 14,710, employing 1,831,396 persons. Number of distilleries (1909-10), 2809; output of alcohol, 114,278,000 gallons. Sugar works (1909-10), 277; area under beetroot, 1,666,108 acres; sugar production, 85,856,000 poods. About 80,000 hands are employed in the timber industry; value of total annual output, 155,000,000 roubles. Flax, hemp, and jute factories, 414; employees 52,000; annual production (about), 73,000,000 roubles. Cotton spinning and weaving mills, 140; employees, 399,900; spinning spindles, 8,132,338; twist spindles, 322,145; looms, 139,064; value of annual production (about), 607,000,000 roubles.

FISHERIES. The opening of the Tashkent Railway has given an impetus to fishing in the Aral and Inland Sea. Russia held second place in the world's production in 1893; but lack of transportation and refrigeration facilities predestine the bulk of the annual catch to home consumption or waste. In 1906 the fish traffic on Russian lines amounted to 44,453,000 poods (19,062,000 poods of herrings, 16,889,000 of smoked and dried fish, 345,000 of caviare).

COMMERCE. The most notable feature of Russian trade during the last decade is Germany's success in becoming the dominating factor in it; and in proportion as Germany has gained influence, Great Britain has lost it. Of the total imports in 1909 Great Britain supplied 17,

Germany 43 per cent.; of foodstuffs, 7 and 25; raw materials and partly manufactured articles, 20 and 38; manufactures, 14 and 67. Another noteworthy feature is the increase in the export of cereals, particularly wheat, since 1905 (see table of cereal exports). Statistics given in the following tables will show totals and details for successive years.

Total trade of the empire in roubles:

	1907	1908	1909
Imps.: mdse.	847,365,000	912,659,000	906,336,000
Gold, silver	10,337,000	28,226,000	46,284,000
Exps.: mdse.	1,053,010,000	998,250,000	1,427,675,000
Gold, silver	13,108,000	18,910,000	27,806,000

Preliminary figures for 1910 place the imports at 1,178,397,000 roubles, and the exports at 1,493,352,000 roubles; imports and exports of gold and silver in money and ingots at 71,281,000 and 32,157,922 roubles.

Table of principal articles imported and exported in the trade of the empire in 1909 (thousands of roubles):

Imports	1000 r.	Exports	1000 r.
Cotton	97,059	Cereals and flour	723,579
Machinery, etc.	96,938	Timber	126,575
Tea	59,241	Flax and tow	67,921
Woolens	44,506	Eggs	62,213
Metal mfrs.	38,742	Butter	48,862
Coal, etc.	32,036	Petroleum	34,752
Fish	29,939	Oil cake	33,649
Rubber	24,146	Sugar	28,233
Metals	23,893	Bran	26,515
Silks	20,773	Seeds	26,160
Paper, etc.	20,402	Hides	23,707
Yarn	18,763	Cottons	23,401
Plants, seeds	17,682	Metals	22,821
Fruits	17,378	Live animals	20,792
Leather, etc.	17,249	Hemp and tow	12,433

The bulk of the Russian trade goes by way of the European frontier, the Black Sea frontier of the Caucasus, and to and from Finland. The tables below show this trade for successive years.

Trade by great classes, in thousands of roubles (a—foodstuffs; b—raw and half raw materials; c—animals; d—manufactured articles):

	Imports			Exports		
	1908	1909	1910	1908	1909	1910
a	126,304	116,870	121,403	517,944	900,371	901,080
b	410,907	411,137	516,381	370,719	417,062	430,218
c	1,480	1,553	3,070	23,386	25,058	28,948
d	221,743	256,413	312,204	26,720	24,675	23,412
	760,434	785,913	953,058	938,769	1,367,161	1,383,658

Table of cereal exports (1908 and 1909):

	1000 poods		1000 roubles	
	1908	1909	1908	1909
Wheat	89,600	314,229	112,889	384,128
Rye	24,902	35,528	25,995	34,160
Barley	161,278	219,160	132,579	165,864
Oats	29,358	74,652	24,513	61,751
Millet	707	2,055	544	1,565
Buckwheat	1,361	1,559	1,380	1,490
Corn	36,507	41,143	28,578	31,134
Peas	7,060	9,139	7,105	10,403
Other legumes	7,258	10,869	7,519	11,394
Groats	746	851	1,240	1,385
Wheat flour	2,910	5,370	5,619	10,490
Rye flour	6,163	6,934	7,165	7,664
Other flour	47	178	62	196
Bran	31,625	38,975	20,244	26,508

Comparing the average export 1904-1908 with the export in 1909 we find among the increases, the following: butter, 30,404,000 roubles (average 1904-1908) and 48,404,000 roubles (1909); eggs, 55,904,000 and 62,212,000; timber, 93,047,000 and 126,092,000; seeds of forage plants, 5,300,000 and 10,229,000; platinum, 5,044,000 and 12,200,000; hops, 316,000 and 757,000. Oleaginous seeds declined from 20,321,000 roubles in 1908 to 14,478,000 in 1909; cotton goods, from 1,451,000 to 1,044,000. Imports of foodstuffs declined by 7.5 per cent. and imports of manufactured goods increased by 16.8 per cent.

Preliminary figures for 1910 place the imports of merchandise at 953,058,000 and the exports at 1,383,658,000 roubles, distributed among the principal countries of origin and destination and compared with figures for 1908 as follows (values in thousands of roubles):

	Imports		Exports	
	1908	1910	1908	1910
Germany	331,794	440,951	278,863	390,600
Great Britain...	119,868	153,547	220,089	314,975
United States...	74,467	73,894	2,815	9,482
France	35,719	59,368	64,550	93,699
Finland	28,750	85,990	48,762	42,859
Aus.-Hun.	26,424	34,136	48,968	49,498
Netherlands	11,485	19,312	93,533	195,962
D. E. Indies....	16,235	17,816	304	15
China	14,715	12,416	.....	1,236
Italy	12,944	16,892	29,936	75,189
Egypt	13,792	10,144	3,638	3,310
Turkey	7,099	10,103	21,521	26,543
Denmark	8,739	7,709	31,491	26,531
Sweden	10,112	7,653	4,723	8,903
Norway	8,361	6,521	5,752	6,155
Belgium	8,063	6,940	34,391	66,464
Switzerland	4,589	7,710	.....	.....
Rumania	2,756	2,225	12,823	15,056
Others	24,522	29,730	36,610	57,180
Totals	760,434	953,058	938,769	1,383,658

Across the Asiatic frontier additional exports in 1909 were sugar (12,328,000 roubles), and cotton goods (21,519,000); imports, rice (7,025,000), and raw cotton (9,534,000).

SHIPPING. The shipping entered and cleared at all ports in the foreign trade of the empire during 1909 is shown in the following table:

Ports	Entered		Cleared	
	No.	Tons	No.	Tons
White Sea	1,119	851,000	1,084	851,000
Baltic	7,135	5,299,000	7,205	5,373,000
Black & Azov. 4,920		7,075,000	4,753	6,848,000
Pacific Coast..	635	784,000	613	737,000
Total	13,808	14,009,000	13,655	13,809,000

Coasting vessels (1908) touching at ports of the White, Baltic, Black, Azov, and Caspian seas, the Danube, and the Pacific Coast, 70,553, aggregating 30,680,000 tons. Merchant marine January 1, 1911: White Sea, 58 steamers (12,938 tons) and 410 sailing vessels (23,397 tons); Baltic, 207 (102,964) and 745 (78,613); Black Sea and Sea of Azov, 403 (200,393) and 780 (43,888); Caspian, 250 (119,254) and 561 (114,118). Total, 3447 vessels of 723,562 tons.

COMMUNICATIONS. An examination of the budget for 1910 shows an (extraordinary) appropriation of 64,110,310 roubles for the construction of new railways; for 1911, of 95,218,165 roubles.

Much new railway construction was in pro-

gress during 1911, the most important perhaps being a new connection between St. Petersburg and the Siberian Railway. This extends from Perm through Ekaterinburg and Tiumen to Omsk on the Siberian Transcontinental. The line to Ekaterinburg was finished early in the year and the remainder of the work is in progress. A narrow-gauge line from Herby on the German frontier, which connects with the existing Dombrova-Vistula Railway at Kielee was opened during the year. It is 81 miles in length and runs via Czestochowa. There was considerable discussion of new railway projects in hand, and surveys were being made between the Siberian Railway and the Black Sea ports, and also across the Caucasus.

The double-tracking of the Siberian railway is in progress. In order to connect Peking directly with the European system, a line is to be built from Peking north through Eastern Mongolia (section from Peking to Kalgan, 135 miles, is already in operation). Following the great caravan route across Eastern Mongolia, the line will join the Siberian system via Kiakhta south of Lake Baikal (length of section, 1000 miles). When the line is completed the railway mileage from Paris to Peking will be 6300 continuous miles (9½ days). A new Amur line is to be begun shortly, and by 1915 the double-track line from the Urals to the Pacific (6862 miles) is to be finished.

In 1911 concessions were granted to six private railways with an aggregate length of 1750 versts (1150 miles) and entailing an aggregate cost of 119,883,850 roubles. The last concession in the year applied to the Black Sea-Kuban Railway, which comprises two lines, crossing each other in that portion of the Kuban district bordering upon the Azov Sea. These two lines have an aggregate length of 280 miles; the one proceeds from Krymskoja station on the Vladikavkaz Railway, in the neighborhood of Novorossisk, to Kuschitchevka, a station on the main line of the same railway from Rostov to Vladikavkaz, while the other line leads from Ekaterinodar to Primorsko-Achtanskaja, on the Azov Sea. The cost was calculated at close upon 20,000,000 roubles. Some additional side and branch lines brought the above-mentioned aggregate of concessioned private railways during the year up to a total of 1150 miles, against 290 miles in 1910, 300 miles in 1909, 1320 miles in 1908, 185 miles in 1907, 100 miles in 1906, and 15 miles in 1905. The unusually large figure for 1908 was to a great extent attributable to the North Donetz Railway. With such large projects under way it was anticipated that there would be less disposition on the part of the government to further railway concessions. This, however, did not prevent additional railway projects being prepared. A large number of applications for concessions were made to the authorities during the year in the first quarter, for instance, 43 applications, against 55 for the whole of 1910, and 42 in 1909. Among the plans likely to be first realized were the Moscow-Kasan and Vladikavkaz Railway, besides several railway projects in central Asia, upon the financing of which interested parties had been engaged for some time. The Podolian Railway Company, which had raised the capital in Germany for the construction of its trunk line, was considering fresh projects, comprising the building of a railway from Slobin via Masyr, Ovratch, Nov-

gorod, Volynsk to Scheptowka, and one from Storokonstantinow to Shmerinka. Should the Podolian Railway Company secure the concession for the former of these two schemes, it would mean a direct railway from St. Petersburg to the Austrian frontiers.

Railways in operation January 1, 1911: European Russia, 55,646 kilometers (State, 36,449; companies, 16,865; short local lines, 2332); Asiatic Russia, 16,892. Total, 72,538 kilometers (45,073 miles). State telegraphs (1909), 175,720 kilometers (wires, 472,856 kilometers); police lines, 389 (389); railway lines, 14,813 (205,874); company lines, 4175 (8458): total, 195,097 kilometers (wires, 687,588). Telegraph offices: 3783 State, 4168 other. Telephone lines (1909): 11,270 kilometers urban (wires, 394,622 kilometers); inter-urban, 1051 (4137). Post offices, 14,963.

Length of rivers open to navigation, 24,649 miles; 10,396 more are available for the towing of loaded barges downstream, and 18,122 for floating timber rafts: a total of 53,167 miles. Length of all navigable waterways (rivers, canals, and lakes), 102,600 miles, of which 49,625 are in European and 52,605 in Asiatic Russia. Length of road of all kinds, 707,628.4 versts (0.062897 mile=1 verst): 459,110.7 versts in European Russia proper, 65,482.9 in Poland, 18,436.4 in the Caucasus, 108,152.5 in Siberia, 56,445.0 in central Asia.

FINANCE. The unit of value is the rouble, worth 51.5 cents. The revenue and expenditure, ordinary and extraordinary, are given as follows in roubles (1910 and 1911 budget estimates):

	1909	1910	1911
Rev. ord....	2,526,340,888	2,580,063,497	2,707,708,827
" extraord.	162,744,206	11,624,383	12,400,000
Total ...	2,689,085,094	2,591,687,880	2,720,108,827
Expend.			
ord.	2,451,423,768	2,470,035,313	2,527,272,220
extraord.	156,127,871	121,652,567	192,836,607
Total ...	2,607,551,639	2,591,687,880	2,720,108,827

Principal sources of revenue and avenues of expenditure as contained in the 1911 estimate:

Revenue	1000 rs.	Expenditure	1000 rs.
Direct taxes ..	210,976	Holy Synod	37,535
Indirect taxes:		Imperial House.	16,360
Spirits	42,788	Higher State	
Tobacco	65,086	Institutions .	8,266
Sugar	123,120	Communications	548,209
Naphtha	44,036	War	482,684
Customs	289,310	Finance	409,387
Matches, etc.	23,193	Public debt....	407,167
Duties	169,356	Interior	163,368
State monopolies:		Navy	108,257
Mining	320	Agriculture, etc.	101,496
Mint	4,001	Pub. Instruction	97,572
Telegs. and		Justice	77,076
Telephs. ...	31,400	Commerce and	
Posts	66,486	Industry	40,788
Sale spirits...	747,445	Audit	10,798
State Domains.	766,968	State stud.	2,035
Redemp. pay'ts	720	Foreign Affairs.	6,273
Various	122,504	Other	10,000
Total ord....	2,707,709	Total ord....	2,527,272
Extraord. ...	12,400	Extraordinary:	
Total	2,720,109	Ry. const.....	95,218
Total 1912*...2,975,252		Army	48,600
* Preliminary.		Jap. war.....	2,303
		Various	46,716
		Total	2,720,109
		Total 1912*...2,975,252	

The public debt stood, January 1, 1911, at 9,014,141,796 roubles.

ARMY. The modernization and reorganization of the Russian army taking place in 1911 included the formation of new army corps from reserve troops and other organizations formed at the time of the Russo-Japanese War. Three of these new corps were to be located in European Russia, one in the Caucasus, and two in Siberia and the far East. There were 27 army corps in European Russia, 3 in the Caucasus, 2 in Turkestan, and 5 in Siberia and the far East. These form several armies, that in Russia proper being organized on strictly European lines, while those in the Caucasus, Turkestan, and the Amur regions have an organization influenced by local conditions, though great improvements were taking place in some districts where military training for the inhabitants was being introduced. Estimates vary greatly concerning the strength of the Russian army. Returns for its peace strength, considering only the officers and men serving with the colors, published during the year in military journals, gave the distribution and numbers of troops as follows: Infantry 580,000, cavalry 115,000, field artillery 94,110; foot artillery 18,056, coast artillery 14,152, technical troops, 37,448, total peace strength 1,200,000. The fighting strength of the three arms, namely, the infantry, cavalry, and artillery on mobilization, considering only the existing organization, has been estimated as follows: Infantry rifles 973,152, cavalry sabres 11,825, field guns 4432, sabres per thousand infantry bayonets 114.91, field guns per thousand infantry bayonets 4.55, fully trained reserves available for passing from peace to war footing 3,800,000.

In the Russian army the liability to personal service extends from the 21st to the 43rd year of each male inhabitant, and there is available each year a contingent of over a million men of suitable age. For those joining the active army the period of service is three years with the colors, four in the case of the cavalry, thirteen in the reserve, and the remainder of the period in the Opoltschenié, or militia. This last organization, which was being formed in 1911, includes in addition to those who have served with the colors and in the reserve some 220,000 each year, who are not needed for the active army. It was desired to make it a valuable support so that in time of war it would furnish organized troops.

An interesting military event has been the reduction of the forces on the German and Austrian frontiers by three army corps and one and one-half cavalry divisions, and the strengthening of the St. Petersburg district, and the redistribution of troops in central Russia, so that more rapid mobilization and availability for action from a central point would be possible.

An important part of the Russian army is the Cossacks, which furnish a cavalry that is an essential element in the organization. The Cossacks have their own organization, liability to service beginning at the eighteenth year. The first period of three years is local service, but for twelve years thereafter they are enrolled in the active forces either with the first ban, which is actually serving, or with the second or third, which are on unlimited leave. The peace effective of the Cossacks with the colors was estimated in excess of 50,000, and on a war basis

this number could be increased to some 150,000, of which number 4000 would be officers.

Aviation was being actively practiced during the year and a school for officers was established. The officers permitted to take the course for the year 1911-1912 comprised 84 officers, 40 engineers, and 8 from the navy. A course regarding the material for aeroplanes was included and aeroplanes were secured from many of the best European makers. Before admission all the officers were submitted to a special medical examination, which was extremely rigorous. See MILITARY PROGRESS.

NAVY. The number and displacement of war ships of 1000 tons and over, and of torpedo craft of 50 tons and over, built and building, December 1, 1911, are placed at 211, of 473,879 aggregate tons, detailed as follows: Battleships (10,000 tons and over), 16, of 280,250 aggregate tons (of which, building, 7, of 158,000). Coast-defense vessels, 2, of 10,380 aggregate tons. Cruisers, 6 armored cruisers, 63,500 aggregate tons; 7 first-class cruisers (6000 tons and over), 46,460; 2 second-class (6000 to 3000 tons), 6385; 2 third-class (3000 to 1000 tons), 2680. Torpedo-boat destroyers, 108, of 49,050 (of which, building, 13, of 13,260). Torpedo boats, 29, of 3722. Submarines, 39, of 11,448 (of which, building, 8, of 4800). Total vessels built, 183, of 297,819 aggregate tons; building, 28, of 176,000.

During 1911 the four dreadnoughts (92,000 aggregate tons) whose keels were laid June 16, 1909, were launched—the *Sevastopol* June 29, the *Poltava* July 10, the *Petrovavlovsk* September 9, the *Gangut* October 7. The construction of three new dreadnoughts (22,000 tons) for the Black Sea was begun in 1911—the *Emperor Alexander III.*, *Empress Marie*, and *Ekaterina*; their keels were laid October 30. Nine destroyers (1050 tons) and six submarines were also included in the programme for the Black Sea fleet.

The Russian navy bill, introduced in July by the minister of marine (Vice-Admiral Grigorovitch, appointed April 1, 1911), provides for the fixing of the naval strength according to a definite standard: For the Baltic fleet, 16 battleships, 8 armored and 16 other cruisers, 72 torpedo-boat destroyers, and 24 submarines, by 1924; the fleet in the Black Sea to be "half as strong again as any possible combination of fleets in those waters." The creation of a fleet in the Pacific being impracticable, only cruisers and torpedo craft will be maintained there. These projects had not in 1911 been ratified by the Duma.

The budget estimate (1911) for naval expenditure was 108,256,600 roubles; for 1912, 154,348,477. Additional sums were asked in 1912 for equipment of the admiralty shipbuilding yards, and other works. The number of men proposed for 1911 was 46,655; the number is fixed annually by law, and the men are recruited by conscription. See BATTLESHIPS and NAVAL PROGRESS.

GOVERNMENT. The emperor (1911) is Nicholas II. In him is vested the entire legislative, executive, and judicial powers. The Duma and the Council of the Empire have nominal legislative functions, and special administrative boards exercise executive functions. In 1911 the heads of departments were: Premier and Minister of Finance, V. N. Kokovtsoff; Minister of the Imperial Household, Gen. V. B. (Baron) Fredrickaz; Foreign Affairs, S. Sazonoff; War,

Gen. V. A. Sukhomlinoff; Marine, Vice-Admiral I. K. Grigorovitch; Justice, J. G. Stcheglovitch; Interior, A. A. Makaroff; Commerce and Industry, S. I. Timacheff; Communications, S. V. Rukhloff; Procurator-General of the Holy Synod, V. K. Sabler; Agriculture, A. V. Krivocheyn; State Comptroller, P. A. Kharitonoff; Instruction, Dr. L. A. Casso. President of the Council of the Empire, M. G. Akimoff. President of the Duma, M. V. Rodsianko.

HISTORY

FOREIGN RELATIONS. The chief event in Russia's foreign relations during the year was the conclusion of the agreement with Germany concerning the Persian railways. See GERMANY, *History*, paragraph *Bagdad Railway*, and FRANCE, *History*. For other aspects of Russian foreign relations, see CHINA, *History*; UNITED STATES, *History*; and PERSIA, *History*.

M. STOLYPIN AND THE ZEMSTVO BILL. A serious constitutional difficulty arose in March. M. Stolypin had previously submitted to the Duma his project for the creation of separate electorates for Poles and Russians for the zemstvos of the southwestern (Polish) provinces, thereby establishing a local government system with a measure of self-government. It was a compromise measure which aimed to reconcile the interests of the Polish aristocracy with those of the Russians who make up the mass of population. It passed the Duma by a small majority, but when it came to the imperial council a vigorous opposition developed, comprising the members of all parties, and it was defeated by a large majority. Thereupon the premier presented his resignation to the czar, who, after trying in vain to prevail on M. Kokovtsoff to form the new ministry, recalled M. Stolypin to power on the latter's own terms, namely, the suspension from the council of his two opponents, General Trepoff and M. Durnovo, and the prorogation of the council and the Duma for four days, during which the law was promulgated by a simple decree under the emergency clause of the constitution. This arbitrary act caused great discontent in the Duma, where, in April, the leading orators vigorously denounced M. Stolypin. M. Guchkoff resigned the presidency of the Duma, and for a time a dissolution was threatened. M. Stolypin, at a crowded meeting of the Duma on May 10, denounced his critics, and after explaining the government's motives in applying the emergency clause of the constitution for the promulgation of the bill, declared that the government would not resort to the use of that clause in regard to any measure that had not been previously sanctioned by the Duma. He appealed to the Nationalist sentiment on behalf of the 10,000,000 Russians in the southwestern provinces, whose interests required the immediate passage of the bill. The Nationalist party was the only one that applauded his speech, the rest of the house receiving it with marked expressions of disapproval.

ASSASSINATION OF M. STOLYPIN. On September 14, while attending a performance at the theatre of Kiev, M. Stolypin, the Russian premier, was shot by a converted Jew named Bogroff. In the interval between the acts the premier was standing at the front row of the stalls, when the assassin advanced as if to speak to him. As M. Stolypin turned to address him



Photograph by Paul Thompson, N. Y.

PETER ARKADIEVITCH STOLYPIN
PREMIER OF RUSSIA, DIED SEPTEMBER 18, 1911

the man fired two shots in quick succession and ran from the house. The czar was in the imperial box when the tragedy occurred. The assassin was soon taken by the police, and his arrest was followed by that of his relatives and immediate friends. At the time of the crime Bogroff was a police agent, and it was said that he had told of a plot against M. Stolypin's life, and was, for that reason, placed among the officials who were to protect the theatre. M. Stolypin, after lingering a few days, died on September 18. The strong feeling against him among the revolutionaries and the more liberal element in Russian politics had increased during the last few months, though he retained the confidence of the czar. M. V. N. Kokovtsoff (q. v.) who had made an excellent record as minister of finance, succeeded him as premier. M. Makaroff succeeded to the portfolio of the ministry of the interior, which had been held by M. Stolypin.

OTHER EVENTS. On January 23 the government forbade students' meetings except for scientific purposes. During February disturbances in the universities caused the suspension of several courses of instruction. The police were blamed for their excesses on these occasions. In March the minister of education announced the determination to appeal to both professors and students to attend strictly to their classical and scientific studies. The rigorous treatment of the universities, resulting in the dismissal of several professors and the exile of numerous students and the introduction of the police into the universities, was severely criticized by the press and in the Duma. In February the Duma voted the financial means for the introduction of a system of elementary education. In spite of the refusal of the Duma to vote credits for the battleships until the naval administration had been reorganized, the budget committee proposed in February an annual instalment for the construction of four new battleships, but under conditions that limited the expenditure. The navy bill was published early in July. See above, *Navy*.

In June serious charges of corruption were brought against a number of public officials, and on July 17 sentence was rendered against several of them, together with certain members of a commercial house. An American squadron of four vessels visited St. Petersburg in June. In February the governor of Chernigov began to carry out a measure for a very extensive expulsion of Jews from the province. In March the rule for public schools, by which Jewish children might attend only at a ratio of 3 per cent. of the total attendance in cities, 5 per cent. in smaller towns, and 10 per cent. in the Jewish settlements, was extended by the ministry to private schools and to trade institutions. The Russian government's decision to incorporate the two maritime communes of the Viborg province in the St. Petersburg government caused great discontent throughout the whole province, and mass meetings were held in August and September to protest against it. The monk, Heliodorus, whose eccentric courses offended the Holy Synod, defied the latter's order for his removal, and, fortifying his church, held out against the authorities for two months. Finally, at the czar's request, the order for removal was withdrawn.

RUSSIAN BALALAIKA ORCHESTRA. See MUSIC.

RUSSIAN UNIVERSITIES. See UNIVERSITIES AND COLLEGES.

RUSO-FRENCH ALLIANCE. See FRANCE.

RUTGERS COLLEGE. An institution of higher learning at New Brunswick, N. J., founded in 1766. The number of students enrolled in the various departments of the college in 1911-12 was 500. The faculty and instructors numbered 55. During the year the faculty lost by death Edward B. Voorhees, professor of agriculture. Edward Luther Stevenson, professor of history, and Henry DuBois Mulford, professor of English, resigned. Their places were temporarily filled for the year 1911-12. A bequest of \$15,000 was received from V. M. W. Suydam, and another of the same amount from Miss Susan Y. Lansing was announced. Other gifts to the value of about \$25,000 were received. The productive funds amounted to \$700,000, and the income to about \$210,000. A chemistry building was completed during the year at a cost of \$66,000. As the State college of New Jersey it received during the year increase of support by the State for competitive scholarships. The library contains about 65,000 volumes. President W. H. S. Demarest, D. D.

RUTHERFORD'S THEORY. See PHYSICS.

RYAN, PATRICK JOHN. An American Roman Catholic archbishop, died February 11, 1911. He was born at Thurles, County Tipperary, Ireland, in 1831 and graduated from Carlow College in 1852. He was ordained as sub-deacon and shortly after came to the United States. He became professor of English literature at Carondelet Theological Seminary at St. Louis. He was ordained as priest in that city in 1853, becoming rector of the cathedral in 1856. During the Civil War he acted as chaplain at a military hospital in St. Louis. While rector of the Annunciation Church he delivered the Lenten lectures in English at Rome in 1868 on invitation of Pope Pius IX. He was consecrated in 1872 titular bishop of Tricomia in Palestine and made coadjutor-bishop of St. Louis. He was promoted to archbishop in 1883 and in the following year was transferred to the see of Philadelphia. In 1902 he was appointed by President Roosevelt a member of the board of Indian commissioners to succeed Bishop Whipple. He received the degree of LL. D. from Manhattan College, New York University, and the University of Pennsylvania. He was the author of *What Catholics Do Not Believe*, and the *Causes of Modern Religious Skepticism*.

RYE. The International Institute of Agriculture at Rome reports the total rye production in 1911 of 18 countries adhering to the institute at 1,550,560,000 bushels, as compared with 1,636,175,000 bushels in 1910. In comparison with 1910 the production in 1911 was considerably reduced in Russia, Rumania, Austria, and Hungary. The lower yields in these countries were due to a late and cold spring or to dry weather, and in some instances to both. Russia, the leading rye-producing country of the world, produced 762,109,000 bushels in 1911 and 867,626,000 bushels in 1910. These yields included 10,769,000 and 13,616,000 bushels of spring rye, respectively. Germany, which ranks second, produced 427,775,000 bushels in 1911 and 413,802,000 bushels in 1910, the area for the two years being 15,161,110 and 15,287,521 acres re-

spectively. Hungary, including Croatia and Slavonia, in 1911 produced 54,872,000 bushels, or about 99 per cent. of the crop of the previous year. The crop of Hungary proper was 96.3 per cent. of the crop of 1910, but in Croatia and Slavonia the production was 164.8 per cent. of the production of 1910. The Austrian crop of 1911 amounted to 103,155,000 bushels, which was 95.6 per cent. of the previous crop. France produced 48,156,000 bushels, or an increase of 9.6 per cent. over 1910. A more complete list of yields by countries is given under AGRICULTURE.

The rye crop of the United States in 1911 was about normal. The untoward weather conditions which injured most of the other crops affected rye and winter wheat but little, as these crops had largely matured when the drouth set in. The total production in 1911 was 33,119,000 bushels, and in 1910 34,897,000 bushels, the acreage for the two years being 2,127,000 and 2,185,000 acres respectively. The total value of the crop, based on the farm value on December 1, 1911, which was 83.2 cents per bushel, amounted to \$27,557,000, as compared with \$24,953,000 the year before. The leading rye States and their yields in 1911 were as follows: California 40,600,000 bushels, Minnesota 28,025,000 bushels, Wisconsin 20,010,000 bushels, North Dakota 20,475,000 bushels, Iowa 10,950,000 bushels, and Washington 6,512,000 bushels. The States leading in acreage were as follows: Minnesota 1,475,000 acres, California 1,450,000 acres, North Dakota 1,050,000 acres, and South Dakota 1,020,000 acres. The average yield for the entire country was 21 bushels per acre, as compared with 22.5 bushels in 1910 and 1909. The highest average yield for any State, 43 bushels per acre, was secured in Utah.

SACCHARIN, EFFECTS OF USE OF. See FOOD AND NUTRITION.

SAHARA. See EXPLORATION.

ST. ANDREW, BROTHERHOOD OF. An organization of the Protestant Episcopal Church, established for the spread of religious faith among young men. The brotherhood is divided into senior and junior departments. The active senior departments in 1911 numbered 947, and the junior departments 580. The brotherhood is active in the cause of personal evangelism, and is carrying on a general movement for the advancement of this cause. There were five secretaries in the field in 1911. Conferences were held in the South at Biloxi, Miss., in July, and at Seattle, Wash., in September. The national convention was held at Buffalo in October. The president of the brotherhood is Edward H. Bonsall, Philadelphia, and the general secretary is Hubert Carleton, D. C. L., Boston.

ST. BRANDON, or CARGADOS. A dependency of Mauritius (q. v.).

ST. HELENA. A British island in the South Atlantic. Area, 47 sq. miles; population (census of 1911), 3520. Jamestown (1416 inhabitants), the capital and port, is a British coaling station. Imports (1910), £37,570 (Great Britain, £33,781), against £29,303 (£28,059), in 1909; exports, £9234 (Great Britain, £8160) against £7892 (£1231) in 1909. Revenue (1910), £9306 (£8778 in 1909); expenditure, £9596 (£9045). Debt nil. Governor (1911), Capt. H. E. S. Cordeaux.

ST. KITTS, or St. CHRISTOPHER. A British West Indian island; a dependency (with Nevis

and Anguilla) of the Leeward Islands. Area of St. Kitts, 65½ sq. miles; of Nevis, 50; of Anguilla, 35. Total area, 150½ sq. miles; total population, census of 1911, 43,303 (46,446 in 1901): St. Kitts, 27,733; Nevis, 12,495; Anguilla, 4075. Basseterre (8200 inhabitants in 1911) is the capital. Sugar-cane and cotton are the main crops; cattle are exported to near-by islands. The imports amounted in 1910 to £195,277, and the exports to £205,693. There are telegraph and telephone lines. Revenue (1910-11), £52,748; expenditure, £49,782. The debt stood, March 31, 1911, at £50,093. T. Laurence Roxburgh was administrator in 1911.

ST. LOUIS (Mo.). See MUNICIPAL GOVERNMENT, and BUILDINGS.

ST. LOUIS PUBLIC LIBRARY. See LIBRARY PROGRESS

ST. LUCIA. A British colony; an island of the Windward Islands (q. v.), having an area of 233 sq. miles, and a population (census of 1911) of 48,637. Castries, with (1911) 6266 inhabitants, is the capital. Exports of sugar in 1910, 5275 tons; of cacao, 1,637,400 lbs.; of rum, 4692 gallons. Value of total imports (1910), £277,208; of exports, £238,955. The revenue and expenditure for 1910-11 were estimated at £65,066 and £67,288 respectively. The debt stood at £146,930. E. J. Cameron was administrator in 1911.

ST. PIERRE and MIQUELON. A French colony, with other smaller islands off the southern coast of Newfoundland. The total area amounts to 93 sq. miles; population (1906), 6482. The only important industry is fishing. The imports amounted in 1909 to 5,167,000 francs; the exports, to 8,744,000. In 1909 1435 vessels, of 169,000 tons, entered. The local budget balanced in 1910 at 489,000 francs, and the debt stood January 1, 1910, at 439,000 francs. The office of administrator was vacant in 1911.

ST. THOMAS. See SÃO THOMÉ AND PRINCEIPE.

ST. VINCENT. A British colony; an island of the Windward Islands (q. v.), having an area of 140 sq. miles; population (census of 1911), 41,877. Births in 1910, 1687; marriages, 161; deaths, 831. About 13,800 persons are engaged in agriculture. Kingston, the capital, had (1911) 4300 inhabitants. Government primary schools, 8; mission, 19. Attendance (1909-10), 2222. Arrowroot, cassava, cacao, cotton, cereals, peanuts, and sugar-cane are grown; livestock is raised. Estimated acreage of cultivated land in the colony, 20,000. There are reported 25 sugar mills, 36 arrowroot mills, 2 cotton factories, and 5 distilleries. Imports and exports (1910-11), £97,737 and £101,180 respectively. There are no railways nor canals. The island is connected by telegraph with the other West Indian colonies, and has about 150 miles of telephone lines. Post offices (1909-10), 14. Revenue and expenditure for the year 1910-11, £30,125 and £30,343 (1909-10, £28,440 and £31,331). Public debt (March 31, 1910), £2050. Administrator (1911), C. Gideon Murray. Attached to St. Vincent are some of the Grenadine Islands.

SAKHALIN. An island, in part Russian, in part Japanese, off the eastern coast of Siberia. The Russian area is about 16,370 sq. miles, with about 12,000 inhabitants. It is governed by an administrator.

KARAFUTO, southern or Japanese Sakhalin. covers about 8800 sq. miles, and has about 26,000

inhabitants, of whom some 24,000 are Japanese. Forest products are important, and the fisheries are developing. The local budget balanced (1911-12) at 2,105,604 yen; ordinary revenue and expenditure were estimated at 1,151,947 and 1,011,072 yen, the deficit being covered by Japan. M. Hiraoka was administrative head in 1911.

SALEM. See NAVAL PROGRESS, *Propulsion*.

SALT LAKE CITY. See UTAH.

SALTUS MEDAL. See PAINTING.

SALVADOR. A Central American republic, on the Pacific coast. Capital, San Salvador.

AREA AND POPULATION. The area is estimated at 7225 sq. miles. The population, which is largely mestizo and Indian, is not definitely known, but a recent estimate places it at over 1,700,000. This figure is probably too high, but the country is, nevertheless, the most densely populated of the American republics. The larger towns include: San Salvador, with about 60,000 inhabitants; Santa Ana, 60,500; San Miguel, 25,000; Ahuachapán, 20,600; Chalchuapa, 20,400; Nueva San Salvador (Santa Tecla), 18,000; San Vicente, 20,400; Zacatecoluca, 20,000; Sonsonate, 18,000.

Primary schools, instruction in which is free and nominally compulsory, number about 600, with about 35,000 pupils enrolled and some 1100 teachers. There are over twenty higher schools.

PRODUCTION AND COMMERCE. The leading crop is coffee. Other important products of the soil are cacao, tobacco, indigo, rubber, balsam of Peru, sugar, and bananas. Mining, though largely confined to gold and silver, is growing in importance.

In 1909 and 1910 imports were valued at \$4,176,932 and \$3,745,249 respectively; exports, 16,963,575 and 18,244,590 pesos silver. With the gold premium at 150, the export values are converted to \$6,785,431 and \$7,297,836. Imports and exports in thousands of dollars (gold):

	1901	1905	1908	1909	1910
Imports	2,616	4,346	4,241	4,177	3,745
Exports	4,273	5,640	5,788	6,785	7,298

Leading imports in 1910: Cotton cloth and manufactures, \$1,091,246; flour, \$247,438; hardware, \$229,429; drugs and medicines, \$214,510; boots and shoes, \$174,888. The principal exports in 1909 and 1910 respectively were valued as follows (the silver peso being converted at 150): Coffee, \$4,590,705 and \$5,128,761; silver, \$412,329 and \$619,819; gold in bars, \$688,510 and \$601,319; indigo, \$257,246 and \$314,843; sugar, \$136,575 and \$292,755; balsam, \$103,681 and \$81,120. In 1910 the United States sent imports and received exports amounting to \$1,346,597 and \$2,279,669; Great Britain, \$1,165,993 and \$483,809; Germany, \$407,392 and \$1,584,632; France, \$262,294 and \$1,097,118; Italy, \$133,700 and \$609,674.

COMMUNICATIONS. At the end of 1910 there were in operation 156 kilometers (97 miles) of railway (narrow gauge). A line connects the port of Acajutla with San Salvador (105 kilometers), and a branch extends from Sitio del Niño to Santa Ana (40 kilometers). A line of 18 kilometers connects the capital with Santa Tecla. A railway is under construction between San Miguel and La Unión (62 kilometers). Telegraphs, 179 offices, with 2479 miles of line; post offices, 101.

FINANCE. The silver peso fluctuates in value,

being ordinarily worth about 40 cents. Ordinary revenue and expenditure have been as follows, in pesos:

	1908	1909	1910
Revenue	10,676,339	10,716,099	10,620,865
Expenditure	12,656,657	11,856,002	13,206,243

In 1910 extraordinary revenue was 2,630,761, making the total receipts 13,251,626 pesos. Of the ordinary revenue in 1910 import duties supplied 5,333,680 pesos; export duties, 868,650; liquor tax, 2,602,958. The larger branches of expenditure were: Public credit, 4,659,658 pesos; war and marine, 3,067,532; government, 1,937,948; fomento, 996,430; treasury, 590,818; charities, 508,350; justice, 498,929; public instruction, 492,174. The budget for 1911 showed a total estimated revenue of 13,129,750 pesos and expenditure 13,286,750 pesos. Public debt, December 31, 1910: External, 8,039,257 pesos gold; internal, 2,627,330 pesos silver; treasury bonds, 3,619,728 pesos silver.

ARMY. The army of Salvador is neither permanent in its numbers nor of sufficient training for active military operations. Its strength may be estimated at about 3000 men on a war footing, with about 18,000 militia in addition. In case of war all male inhabitants of the republic may be called upon for military service.

GOVERNMENT. The president is elected by popular vote for four years and is assisted by a cabinet of four members. The legislative power is vested in the unicameral National Assembly of forty members. Gen. Fernando Figueroa, who was inaugurated president March 1, 1907, was succeeded on March 1, 1911, by Manuel Enrique Araujo; vice-president, Onofre Durán.

SALVARSAN (ARSENO-BENZOL; 606). This new arsenic derivative discovered by Ehrlich and Hata was widely used during 1911 as a specific for syphilis. The wide advertising which this drug received and the remarkable properties attributed to it led to its somewhat reckless and indiscriminate use throughout both Europe and the United States. The earlier reports which were received led both the medical profession and the public to believe that a single dose would effect a cure, that it completely destroys the infection and eradicates the disease. The new drug was to be a *therapia sterilans magna*, in Ehrlich's phrase, which would destroy by one massive dose all of the spirochetæ in the syphilitic patient. This hope has been far from realized. Not only has a single dose of the drug failed to cure, but the evidence is increasing that it does not permanently or completely cure any case. Nevertheless, in severe and intractable cases where the ordinary treatment has proved ineffective, salvarsan has shown a remarkable effect. The general opinion seems to be that the drug should be reserved for such cases, and that the ordinary well-tryed methods should be adhered to as a rule. This opinion is strengthened by reports of the untoward effects of salvarsan in numerous instances. The drug appears to exercise a selective action upon the nervous system, as might be expected of an arsenic compound. Besides many deaths which occurred after the use of the drug, a large number of unpleasant complications have been reported, and there is, moreover, good ground for the belief that a

larger proportion of serious accidents have occurred than would be estimated from the present literature. Atrophy of the optic nerve, deafness, and other auditory disturbances, due to inflammation of the internal ear, were reported quite frequently. Hausmann reported thrombosis of the veins after an intravenous injection of salvarsan. Mohr reported three cases of serious injury to the kidneys under salvarsan medication, and in one case severe collapse and diarrhoea followed intravenous infusion, with other symptoms of arsenic intoxication and damage of the kidney, such as would be found from a systemic poison. Similar cases were reported by Jerome, Jadassohn, Scholz, and others. The drug is given either by intramuscular injections or by direct infusion into a vein (usually of the arm) which has been opened for the purpose.

SALVATION ARMY. A religious body, founded on military principles by William Booth in 1878, although as a Christian mission it had existed in London since 1865.

The United States is divided into two departments, with the national headquarters in New York City. Miss Evangeline Booth is in charge, with Col. William Pearl as chief secretary. The department of the West administers the affairs of the Western States, with headquarters in Chicago. Commissioner Thomas Estill is in charge, with Col. George French as territorial secretary.

The following figures cover the work for the year ending September 30, 1911, in the United States only. The corps and outposts number 870. The indoor attendance at meetings was 7,814,741. The local officers and bandmen number 7010. There were 55,866 junior meetings held, with an attendance of 1,598,433. The relief institutions for the poor include 112 industrial homes, to which 16,196 men were admitted; 83 workmen's hotels, with shelter accommodations for 6792; 19 slum posts, by which 1859 sick cases and 23,859 families were visited; 28 rescue homes, to which 1702 girls and 1174 children were admitted; a bureau for missing friends, through which 211 persons were found. The Salvation Army distributed 18,600 Thanksgiving dinners and 333,742 Christmas dinners (1910); afforded temporary relief to persons outside industrial homes and hotels numbering 209,548. Summer outings were given to 6161 mothers and 27,832 children. There were distributed 2,303,710 pounds of ice and 5,014,681 pounds of coal.

SAMOS. An Anatolian island; a principality tributary to the Porte. It has an area of 181 sq. miles, and a population of 53,424, besides 15,000 residents on the Anatolian shore. The capital is Vathy, with 25,000 inhabitants. The principal products are wine, raisins, olive oil, and tobacco. The imports were valued in 1910 at 28,379,838 piasters, and the exports at 22,138,226 (9,000,000 piasters wine, 2,124,000 cigarettes). The budget for 1910 estimated the revenue at 3,651,660 piasters, and the expenditure at 3,627,496. Public debt, 2,570,500 piasters. Andreas Kopassia Effendi was prince-governor in 1911.

SANATORIA. See TUBERCULOSIS.

SAND-FLY. See PELLAĞRA.

SANDS, JAMES HOBAN. A rear-admiral, retired of the United States navy, died October 27, 1911. He was born in Washington in 1845 and graduated from the United States Naval Academy in 1863. He was made ensign in the same

year and served throughout the Civil War, rising to the rank of master. He served in the North Atlantic blockading squadron in 1863-5 and participated in the evacuation of Charleston and the attacks on Fort Fisher. In 1866 he was made lieutenant and in 1868 lieutenant-commander. He was on duty at the Naval Observatory from 1868 to 1870. He was promoted to be commander in 1880, captain in 1894, and rear-admiral in 1902. In 1902-3 he was commandant at the navy yard at League Island. From 1903 to 1905 he commanded the coast squadron of the North Atlantic fleet and from 1905 to 1907 he was superintendent of the United States Naval Academy. In the latter year he was retired.

SAN FRANCISCO. See MUNICIPAL OWNERSHIP.

SAN FRANCISCO SYMPHONY ORCHESTRA. See MUSIC.

SANGPO RIVER. See EXPLORATION, Asia.

SANI-ED-DOWLEH, Persian minister of finance, assassinated February 4, 1911. He had occupied many positions in the government of Persia, among them minister of commerce, minister of the interior, and minister of education. He was also president of the first Persian parliament. He was arrested in December, 1907, after a quarrel with the shah, who was afterwards dethroned. He was released, however, the day following, through the good offices of the British minister. He fled to the Italian legation. When the disorder arose that ended in the dethronement of the shah, he resumed his cabinet duties as minister of education under the new shah. In 1910 he became minister of finance. His murderers were supposed to have been Georgians.

SANITARY MILK. See DAIRYING.

SANITATION. Recent advances in sanitation include measures to obtain purer water and milk supplies, the extension of sewerage systems, and the abolition of privy vaults and cess-pools, better systems of sewage disposal, the proper collection and disposal of garbage and other city refuse, more efficient street cleaning, the amelioration of housing and factory conditions, improved means of ventilation, the reduction of flies and mosquitoes, the prevention of spitting on floors and street surfaces, and the abolition of the common towel and drinking cup. Aside from pure water supplies, most of these activities may be classed under the general head of municipal and private cleansing and should be clearly differentiated from the classes of health-protective work which are, or should be, the chief function of boards of health. It is to be expected, however, that local and State boards will assume more or less general supervision over municipal cleansing in the interests of sanitary efficiency and for the safeguarding of the public health at such vital points as may be involved. The relation between such cleansing and sanitary operations and boards of health was forcibly discussed in an address by E. O. Jordan in 1911 (published later in the *Journal of Infectious Diseases*, Chicago) entitled, "Profitable and Fruitless Lines of Endeavor in Public Health Work"; also, in an article on "The Relative Values of Different Public Health Procedures," by Mr. H. W. Hill, published in the *Engineering News*, New York, October 12, 1911.

WATER POLLUTION. The National Associa-



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tion for the Prevention of the Pollution of Rivers and Waterways effected a permanent organization at Baltimore, Md., in December, 1911, and appointed a committee on standards of purity. The consensus of opinion was that the campaign against water pollution ought to be conducted on a rational, rather than a sentimental, basis, with due regard to all the conflicting interests, and to the various practical and economic limitations of the subject. Public and private agencies have been studying the pollution of the Ohio River, Lake Michigan, and Lake Erie. The United States Public Health and Marine Hospital Service, as Part I. of *Sewage Pollution of Interstate and International Waters*, has published a report on Lake Erie and the Niagara River. The same federal agency also published, in 1911, a fourth report on the "Origin and Prevalence of Typhoid Fever in the District of Columbia," which still further exonerates the filtered public water supply, and places the chief blame for typhoid on infected milk, contact with typhoid patients, and typhoid carriers.

MILK SUPPLIES. Within the past few years there has been a great awakening to the danger from milk infection at its source, in transit from country to city, and while being distributed to consumers. To lessen this danger stringent milk ordinances have been passed by many cities, milk inspection in country and city established, and bacterial and physical tests of milk made. The New York Milk Committee is studying measures for the control of milk supplies. A "Milk Show" was held at Philadelphia in 1911, under the auspices of the bureau of municipal research of that city. The bureau has published an illustrated report on the show, and the New York Milk Committee has also published, under the title, "Milk Problems," the proceedings of a conference held under its auspices. The part played by the milk supply of the District of Columbia in spreading typhoid there is stated in some detail in the report already mentioned. The board of health of Montclair, N. J., won a victory in the State Supreme Court of New Jersey in its long struggle to uphold the portion of its sanitary code which provides that no milk shall be sold in the town except from cows which have been proven by the tuberculin test to be free from tuberculosis. The case was appealed, but just before it came to trial on appeal in November, 1911, the contesting milk company agreed to supply only milk from tuberculin-tested cows or else milk which had been pasteurized. The British Royal Commission on Human and Animal Tuberculosis published its final report in 1911 (London). The commission was appointed in 1901 and issued interim reports in 1904, 1907, and 1909. Of the various conclusions of the series of reports the ones that are pertinent here are that cow's milk conveys tuberculosis to human beings, chiefly, but not wholly, to infants and children; and particularly abdominal and cervical gland tuberculosis in children; that the infection may be from the feces and urine of the cows as well as from diseased udders; and that strong measures should be taken to prevent the use of infected milk. See DAIRYING.

See also GARBAGE AND REFUSE DISPOSAL; SEWAGE PURIFICATION; SMOKE PREVENTION; and WATER PURIFICATION.

SANITATION OF SOILS. See SOILS.

SANTO DOMINGO, or more properly, THE DOMINICAN REPUBLIC. A republic occupying

the eastern part of the island of Haiti. Capital, Santo Domingo.

AREA AND POPULATION. The estimated area is 18,045 sq. miles, and the estimated population upwards of 600,000, mostly of mixed Spanish and negro origin. According to one estimate, the inhabitants at the end of 1908 numbered 673,611. The principal towns are: Santo Domingo, with 20,000 inhabitants; Puerto Plata, 17,500; Macoris, 15,000; Santiago, 12,000. In 1910 there were 526 public schools (against 481 in 1909), with 18,812 pupils.

PRODUCTION AND COMMERCE. The people are engaged largely in agriculture, but there are no statistics of production. The principal crops are sugar, tobacco, coffee, and bananas. There is a considerable production of honey, and cattle-raising is important. Various minerals occur, but mining is not developed.

According to the general receivership of customs, imports and exports have been valued as follows:

	1908	1909	1910
Imports	\$4,767,775	\$4,425,913	\$6,408,838
Exports	9,398,487	8,113,690	10,849,623

Leading imports in 1910: Cotton manufactures, \$1,481,344; iron and steel, \$863,334; rice, \$497,046; meat and dairy products, \$416,291; wheat flour, \$410,705; oils, \$337,550; leather and manufactures, \$208,587. Principal exports in 1910: Raw sugar, \$5,590,536 (against \$3,304,931 in 1909); cacao, \$2,849,585 (\$2,750,191 in 1909 and \$4,269,047 in 1908); leaf tobacco, \$958,441; coffee, \$323,749; bananas, \$288,647; wax, \$148,804; cattle hides, \$123,732; goat-skins, \$86,084. Trade with principal countries, in thousands of dollars:

	Imports		Exports	
	1909	1910	1909	1910
United States	2,374	3,885	4,709	7,661
France	189	227	924	724
Germany	912	1,108	2,182	2,094
Great Britain	577	709	77	142

COMMUNICATIONS. Railways in operation have a reported length of 232 kilometers (175 miles); in addition, private lines for the larger sugar plantations aggregate about 362 kilometers (225 miles). Puerto Plata is connected by rail with Santiago and Moca, and Sánchez with La Vega; a branch connects Macoris with Jina, and Salcedo with Cabullas. Telegraphs (1909): 52 offices, with 2044 kilometers (1270 miles) of line; of this 1444 kilometers were state owned and in 1910 were increased by 212 kilometers. Post offices, 81.

FINANCE. In 1909 revenue and expenditure amounted to \$4,523,160 and \$4,532,323 respectively; in 1910, \$4,705,738 and \$4,645,287. Of the revenue in 1910, \$3,121,642 was derived from customs. The budget for the fiscal year 1912 showed estimated revenue of \$4,250,000 and estimated expenditure of \$4,256,804. An American-Dominican treaty authorized a loan of \$20,000,000 for the conversion of the debt and established an American receivership of customs, from April 1, 1905. The reorganization of Dominican finance has proceeded satisfactorily, all obligations being met promptly.

GOVERNMENT. The executive authority is vested in a president elected indirectly for six years and assisted by a cabinet of seven mem-

bers. There is no vice-president, and under the constitution (April 1, 1908), the successor of a president dying or incapacitated in office is chosen by the Congress. This body consists of the Senate (12 members) and the Chamber of Deputies (24). Gen Ramón Cáceres was installed in 1906 to complete his predecessor's term and was inaugurated for a full term on July 1, 1908. On November 19, 1911, Cáceres was shot and killed by an assassin, and on December 2 Senator Eladio Victoria was elected provisional president.

In 1911 a boundary dispute with Haiti was submitted to the Hague Tribunal.

SÃO THOMÉ AND PRÍNCIPE. A Portuguese colony composed of two islands off the coast of French Equatorial Africa. Area, about 360 sq. miles; population, 1909, 68,221 (42,103 in 1900, of whom 40,639 negroes). A large part of the world's supply of cacao comes from these islands. Other products and exports are coffee, rubber, and cinchona. The imports in 1909 were valued at 2,560,587 milreis, the exports at 3,240,984. In 1909, 231 vessels, of 584,000 tons entered. São Thomé has a nine-mile railway building. The revenue and expenditure for 1909-10 were estimated at 931,429 and 703,315 milreis respectively. The governorship in 1911 was vacant.

HISTORY. The conditions of labor on the cacao plantations of São Thomé and Príncipe, whence comes about one-fifth of the world's supply of cacao, have been the subject of serious complaints in recent years. Mr. J. Burt, in a report to the British Foreign Office, published in 1908, drew attention to the practice of importing laborers, saying that thousands were brought from other regions, especially from Angola, and forced to labor on the islands, and no effort was made to repatriate. Mr. Cadbury, the British cocoa manufacturer, after a visit to the islands, as a representative of a commission of the British trade, corroborated the charges, and after the publication of his report in 1909, British and American manufacturers resolved not to purchase cacao in that market unless the abuses were removed. The Portuguese government listened to these complaints, and in July, 1909, issued regulations, limiting the zones within which native labor might be recruited, limiting the number of laborers that should be engaged, providing that recruiting could be carried on only by licensed agents, and introducing other measures of reform, which, it was believed, would be effective, if conscientiously carried out. As to repatriation, laborers who had served their time were to be shipped free to the proper port on the African coast at four fixed repatriation periods in each year. Half of the laborer's wages were to be retained by the government and given him on his return to the mainland.

In January, 1911, at the request of the planters, the Portuguese minister of marine and colonies decided that henceforth labor should not be recruited from Angola, but from Portuguese Guinea. There was difficulty during the year over the question of repatriation. The planters of São Thomé and Príncipe objected to the decree of the government concerning the repatriation of native laborers. A group comprising the chief planters of the colony petitioned the government to suspend the decree which required the repatriation of all native laborers at the expiration of their contracts. In answer to this appeal the minister of marine and col-

onies gave the natives who did not care to be repatriated the right to enter into new contracts. It was announced that precautions would be taken against any coercion at the time of re-engagement and that recruiting should take place under government agents, who would make sure that only those natives should be accepted who were willing to make contracts. At the close of the year negotiations were in progress for the sale of the yearly production of the São Thomé and Príncipe plantations to a group of British capitalists.

SARAWAK. A British protectorate covering approximately 50,000 sq. miles, on the west coast of Borneo. Population (estimate), 500,000. Kuching is the capital. Great quantities of coal are present, besides precious metals and diamonds. Sago, rubber, rice, rattans, pepper, and gambier are produced for export. Imports in 1910 were valued at 7,811,556 dollars Mexican; exports, at 8,098,142 (export of gold, 951,119). The revenue and expenditure were estimated in 1910 at 1,407,359 and 1,263,062 dollars respectively. Sir Charles Johnson Brooke was rajah in 1911. The heir-apparent, Charles Vyner Brooke (born September 26, 1874), was married in 1911 to Hon. Sylvia Brett.

SARDIS. See ARCHEOLOGY.

SASKATCHEWAN. A province (since September 1, 1905) of the Dominion of Canada. Area, 250,650 sq. miles. Population, according to the final returns of the census of June 1, 1911, 492,432, as compared with 91,279 in 1901, the increase being 401,153, or 439.48 per cent. Capital, Regina, with (1911 preliminary) 30,210 inhabitants. The province is administered by a lieutenant-governor (in 1911, appointed October 5, 1910, George William Brown), appointed by the governor-general of Canada. He is aided by an executive council (responsible ministry) and a unicameral legislative assembly of 41 elected members. Walter Scott was premier in 1911. See CANADA.

SAVINGS BANKS. American savings banks are of two classes, the mutual savings banks, operated for the benefit of both shareholder and depositor, and the stock savings bank, operated primarily for profit and transacting both a savings and a commercial business. Nearly all mutual savings banks are located in the New England and Eastern States; out of a total of 635 such banks, only 21 are found in other States. Stock savings banks are operated in nearly every State of the Union, but are much more numerous in the Middle Western States than elsewhere. Of a total of 1884 savings banks in the United States in 1911, 421 were found in New England, with 3,394,000 depositors and \$1,372,883,000 of deposits; of these 192, with 2,139,000 depositors and \$791,931,000 deposits were credited to Massachusetts. There were 242 savings banks in the Eastern States, with 4,119,000 depositors, and \$1,981,000,000 deposits; of these, 141, with 1,957,000 depositors and \$1,561,000,000 deposits, were in New York State. There were 197 savings banks in the Southern States, with 367,800 depositors and \$93,614,000 of deposits. In the Middle Western States there were 816 such banks, with 1,064,000 depositors and \$358,600,000 deposits; of these, 697, with nearly one-half of the depositors and deposits, were in Iowa. There were only 54 savings banks in the Western States and 154 in the Pacific States. Of the latter, 123 were in Cali-



INTERESTING MODELS TO SHOW GOOD AND BAD CONDITIONS OF DAIRYING
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fornia. The reports of the comptroller of the currency states that the growth of such banks in California is the most remarkable feature of recent progress. The number of depositors in savings banks in that State increased by 267,996, and the amount of deposits increased by \$28,000,000. The growth of savings institutions in the past ten years has been remarkable. In 1901 there were 1007 savings banks with 6,358,000 depositors and \$2,597,000,000 deposits, whereas the 1884 banks of 1911 had 9,794,000 depositors and \$4,212,000,000 of deposits. Moreover, the average deposits increased from \$408 to \$430 in 1911. This average, however, was \$15 less in 1911 than in 1910.

The mutual savings banks are immensely more important as savings institutions than the stock savings banks. Thus, on June 7, 1911, they showed resources of \$3,762,000,000. Their loans and mortgages aggregated \$1,809,000,000, of which about 90 per cent. was secured by real estate and mortgages owned. They also had \$1,715,000,000 invested in stocks and bonds; of this, about 44 per cent. was in State, county, and municipal bonds, and 45.5 per cent. in railroad bonds, the greater part of the remainder being in the bonds of other public service corporations. The deposits of the mutual savings banks aggregated \$3,460,000,000, a gain of \$100,000,000 during the year. More than 45 per cent. of these deposits were held by the 141 mutual savings banks in New York State. The depositors numbered 7,691,000, a gain of 209,000 during the year. Of these, 2,957,000 were in New York banks and 2,139,000 in Massachusetts banks. Connecticut banks came third with 587,000 depositors. The average rate of interest paid by these banks ranged from 3.7 per cent. in the Eastern States to 4 per cent. in the Western States, the average of all being 3.95 per cent.

Of the 1249 stock savings banks only 49 were in new England and the Eastern States, 196 were in the Southern States, 797 in the Middle Western States, 54 in the Western States, and 153 in the Pacific States; 697 of them were in Iowa and 122 in California. The loans of these banks aggregated \$605,000,000, and their investments in bonds and securities \$133,752,000. They had 2,103,000 depositors, of whom 1,740,000 were savings depositors. Their deposits amounted to \$752,000,000, of which \$176,000,000 was subject to check. The average interest rate which they paid ranged from 3.17 per cent. in Kentucky to 4.2 per cent. in Georgia.

The table on page 626, from the annual report of the comptroller of the currency, gives the latest available data on savings banks throughout the world. This table includes statistics for all savings banks, including postal. For a separate table on the latter see POSTAL SAVINGS BANKS.

SAVINGS BANKS, POSTAL. See POSTAL SAVINGS BANKS.

SCHENECTADY (N. Y.). See MUNICIPAL GOVERNMENT.

SCHLEY, WINFIELD SCOTT. A rear-admiral in the United States navy, retired, died October 2, 1911. He was born near Frederick City, Md., in 1839. He was appointed to the United States Naval Academy in 1856, graduating in 1860. He was assigned as midshipman to the steam frigate *Niagara*, which cruised in Asiatic waters and then around the Cape of Good Hope. The vessel returned to the

United States just at the outbreak of the Civil War. Schley was assigned to the gunboat *Owasco*, which was attached to the Gulf squadron. He saw considerable service in operations on the Mississippi River, taking part in the engagements which led to the capture of Port Hudson, La. In 1862 he was promoted to the rank of lieutenant and in the following year was on duty with the western Gulf blockading squadron. From 1864 to 1866 he served in the Pacific squadron. He was on duty at the United States Naval Academy from 1866 to 1869. In 1871 he participated in the attack on the Salee river forts in Korea. In 1872 he again returned to the Naval Academy, serving until 1876. In the latter year he was promoted to be commander and from 1876 to 1879 he commanded the *Essex*. From 1880 to 1883 he was lighthouse inspector of the second district. He came prominently before the public in 1884 as commander of the expedition sent to the Arctic regions to rescue Lieutenant Greely and the survivors of his expedition. This he succeeded in accomplishing and he was rewarded for this service by a gold medal from Congress. Further recognition was given by President Arthur, who placed him in charge of the bureau of equipment and recruiting. He was made a captain and remained as chief of this bureau until 1889. For three years succeeding he commanded the *Baltimore* and in 1891 sailors from this ship were attacked in the streets of Valparaiso by Chileans, and some of them were killed. The *Baltimore* was threatened by Chilean battleships and Captain Schley made preparations to fight. The Chilean ships, however, did not appear. While in command of the *Baltimore* he took the body of John Ericsson, the inventor, to Sweden and received a gold medal from the king of Sweden. In 1896-7 he was a member of the Board of Inspection and Survey and in the following year he was chairman of the Lighthouse Board. In 1898 he was commissioned commodore and put in command of the North Atlantic squadron. He was promoted rear-admiral March 3, 1899, and was retired October 3, 1901. At the outbreak of the Spanish-American War in 1898 he was placed in command of the *Brooklyn*. He was second in command of the squadron which, under Captain (acting Rear-Admiral) Sampson, blockaded the port of Santiago, where the Spanish fleet had taken refuge. After the battle of Santiago a bitter controversy arose among the partisans of Sampson and Schley as to who was in command at the battle of Santiago. Admiral Sampson was on his flagship, the *New York*, when Admiral Cervera, in command of the Spanish fleet, attempted to escape from the harbor of Santiago on July 3, 1898. Admiral Sampson had started for Siboney, several miles away, to confer with General Shafter. Admiral Schley was outside of Santiago harbor with his flagship, the *Brooklyn*. The partisans of Admiral Schley claimed that he was in active command at the time the Spanish vessels issued from the harbor and that to him therefore was due chiefly the credit of the American victory. The supporters of Admiral Sampson claimed that while the latter was absent at the beginning of the battle, his flagship, the *New York*, turned about at the first appearance of the Spanish fleet and arrived in time to take active part before its close. They claimed that the plans which re-

Countries	Population	Date of report	Form of organization	Number of depositories	Deposits	Average deposit per account	Average deposit per account
Austria	28,350,000	Dec. 31, 1908	Communal and private	2,206,703	\$1,094,961,497	\$273.98	\$273.98
		Dec. 31, 1910	Postal, savings department	2,206,703	46,623,885	21.14	21.14
Belgium	7,517,000	Dec. 31, 1909	Postal, check department	94,621	72,896,186	770.34	257
Bulgaria	4,285,000	Dec. 31, 1910	Government	2,808,549	186,180,990	66.29	24.77
Chile	3,400,000	June 30, 1910	Postal	252,920	8,198,774	32.42	1.94
Denmark	2,657,000	Mar. 31, 1909	Caja de ahorros	268,731	10,543,775	39.23	3.10
Egypt	11,626,000	Dec. 31, 1908	Communal and corporate	1,145,076	169,740,803	148.24	63.64
France	39,276,000	Dec. 31, 1909	Government	104,100	2,254,008	21.65	1.19
		Dec. 31, 1908	Private	7,948,363	710,255,608	89.36	18.08
Aleria	5,232,000	Dec. 31, 1908	Postal	5,642,868	316,456,866	57.09	8.06
Tunis	2,223,000	Dec. 31, 1908	Municipal	19,301	934,380	48.41	1.18
Germany	64,123,000	Dec. 31, 1909	Postal	5,628	1,222,230	217.19	1.55
Luxemburg	246,000	do	Public and corporate	20,616,699	3,729,964,322	180.92	58.17
		do	State	66,352	11,423,511	172.17	46.44
		do	Private and communal	1,149,251	428,023,064	372.44	20.70
Hungary	20,682,000	do	Postal, savings department	727,146	20,006,523	27.51	.97
		do	Postal, check department	18,906	16,894,046	893.58	.80
Italy	34,565,000	Dec. 31, 1910	Communal and corporate	2,261,227	462,641,720	204.60	13.38
		June 30, 1910	Postal	5,160,008	324,279,617	62.84	9.38
Japan	50,939,000	Dec. 31, 1909	Private	7,776,911	67,429,628	8.67	1.32
		Mar. 31, 1911	Postal	11,236,637	81,120,201	7.21	1.59
Formosa	2,290,000	Dec. 31, 1909	Private	6,788	119,491	17.60	.04
China and Korea	do	Mar. 31, 1911	Postal	90,893	946,549	10.41	.29
		do	do	151,760	2,051,163	13.52	...
Netherlands	5,911,000	Dec. 31, 1908	Private	411,494	38,056,134	92.48	6.44
		Dec. 31, 1910	Postal	1,610,033	64,436,892	42.67	10.50
		Dec. 31, 1909	Private	13,989	2,668,114	190.72	.07
		do	Postal	71,214	3,073,705	43.16	.08
Curaçao	52,000	Dec. 31, 1907	Postal	3,250	51,310	16.79	.39
Dutch East Indies	37,717,000	Dec. 31, 1908	do	8,039	268,532	33.40	2.44
Dutch Guiana	83,000	Dec. 31, 1909	Communal and private	956,986	128,040,751	132.80	54.03
Norway	2,370,000	Dec. 31, 1909	Government	207,021	11,611,420	1.13	1.13
Rumania	6,772,000	July 1, 1909	State	7,691,315	736,434,971	96.09	4.39
Russia	157,079,000	June 30, 1911	Private	278,357	41,634,481	149.54	13.31
		Dec. 31, 1909	Postal	56,357	1,371,573	24.33	2.11
Finland	2,013,000	do	Postal	496,772	46,931,094	94.66	2.11
Spain	19,503,000	Dec. 31, 1910	Private	1,560,317	216,765,326	138.92	38.58
		Dec. 31, 1910	Communal and trustee	1,560,317	12,167,925	21.91	2.24
Sweden	5,476,000	Dec. 31, 1909	Postal	1,963,147	307,342,077	156.56	86.36
Switzerland	2,559,000	Dec. 31, 1908	Communal and private	1,837,460	254,361,278	139.22	6.93
United Kingdom	45,217,000	Nov. 20, 1910	Trustee	11,832,176	821,904,231	69.46	18.31
British India	232,073,000	Dec. 31, 1910	Postal	1,318,632	49,424,167	17.24	17.24
Australian C'm'w'h.	4,483,000	Mar. 31, 1909	do	1,483,573	268,496,304	174.24	57.66
New Zealand	995,000	1909-10	Government, trustee and joint-stock	359,714	61,643,469	171.37	62.00
		Dec. 31, 1909	Postal	49,056	6,805,869	88.51	6.87
		do	Private	147,478	43,017,587	291.79	2.03
Canada	7,082,000	June 30, 1911	Postal	35,981	14,341,668	499.70	2.95
British South Africa	7,031,000	do	Dominion government	204,536	22,878,210	111.86	2.95
British West Indies	1,792,000	1908-09	Government, post office, and private	87,128	5,900,991	67.73	2.95
British colonies, n. e. s.	18,102,000	do	Government and post office	207,733	12,397,089	59.68	.70
Total for countries	836,837,000			106,991,161	\$10,927,157,369	403.13	\$13.06
United States	92,983,000	June 7, 1911	Mutual and stock	9,794,547	4,212,633,598	403.09	44.82
Philippine Islands	8,000,000	May 31, 1911	Postal	28,239	2,032,014	71.96	...
Grand total	938,820,000			116,814,047	\$16,141,772,981	\$129.62	\$16.13

sulted in the destruction of the fleet were those of Admiral Sampson. During the battle the *Brooklyn* made a manœuvre which afterwards became famous as "the loop." The friends of Admiral Schley contended that this was an excellent piece of naval strategy, while the partisans of Admiral Sampson claimed that by the manœuvre he had endangered the other vessels of the squadron. The movements made by Schley a few weeks before were also criticised, and this controversy continued for three years with ever-increasing bitterness. Admiral Schley then demanded a court of inquiry. This court consisted of Admiral George Dewey, chairman, and Rear-Admirals A. E. K. Benham and F. M. Ramsay. The court held that his conduct had been characterized by vacillation, dilatoriness, and a lack of enterprise, condemning him on all the points in question, but declaring that he was self-possessed during the battle and encouraged the men by his example. It held that the "loop" manœuvre was made to keep the *Brooklyn* from approaching too close to the Spanish ships and that it endangered the other vessels of the squadron. Admiral Dewey dissented from the decision in certain minor specifications. The court made no general decision in regard to the command at Santiago, but Admiral Dewey made a second report in which he stated that he regarded Admiral Schley as the commander-in-chief at the Santiago battle. Admiral Schley appealed from this decision of the court, but the appeal was denied. At the close of the Spanish War he was made commander-in-chief of the South Atlantic squadron, 1899. He held this position until he retired in 1901. He was the author of *The Rescue of Greely* (1885) and *Forty-five Years under the Flag* (1904).

SCHMUCKER, SAMUEL D. An American jurist, died March 3, 1911. He was born at Gettysburg, Pa., in 1848 and graduated from Pennsylvania College in 1873. He served in the Civil War and after its close studied law at New York University. He practiced in Baltimore from 1865 to 1898 and in the latter year was appointed judge of the court of appeals of the State. He was one of the commissioners who prepared the present charter of Baltimore.

SCHOOL HYGIENE. See EDUCATION.

SCHOOLS, DENTAL. See UNIVERSITIES AND COLLEGES.

SCHOOLS, MEDICAL. See UNIVERSITIES AND COLLEGES.

SCHOOLS, PROFESSIONAL. See UNIVERSITIES AND COLLEGES.

SCHOOLS, PUBLIC. See EDUCATION.

SCHOOLS, THEOLOGICAL. See UNIVERSITIES AND COLLEGES.

SCHOOLS OF JOURNALISM. See UNIVERSITIES AND COLLEGES.

SCHOOLS OF PHARMACY. See UNIVERSITIES AND COLLEGES.

SCHOOLS OF PHILOSOPHY. See PHILOSOPHY.

SCHWAB, LAWRENCE HENRY. An American Protestant Episcopal clergyman, died May 28, 1911. He was born in 1858. At the time of his death he was canon of the Cathedral of St. John the Divine in New York City. He wrote *The Kingdom of God*, which comprised the ten Bohlen lectures of 1897, and translations and condensations of Nippold's *History of the Papacy*. For some months before his death

he was engaged on a biography of the late Bishop Henry C. Potter.

SCHWEITZER, JOHANN PAUL. A German-American chemist, died in August, 1911. He was born in Berlin in 1840 and studied at the University of Göttingen, receiving his degree in 1869. Previous to that time he had acted as chemical assistant and instructor in Berlin and in the School of Mines at Columbia University. He served from 1872 as professor of agricultural chemistry, and from 1894 as chemist to the agricultural experiment station, University of Missouri, until he retired from active duties in 1906. He was the author of many papers on chemical subjects in scientific journals.

SCOTLAND. See GREAT BRITAIN.

SCOTT, R. F. See POLAR RESEARCH.

SCUDDER, SAMUEL HUBBARD. An American naturalist, died May 17, 1911. He was born in Boston in 1837 and graduated from Williams College in 1857. He later studied at the Lawrence Scientific School. For two years he acted as assistant to Louis Agassiz. From 1862 to 1870 he was secretary of the Boston Society of Natural History and for the greater part of this period was its custodian. He was president of this society from 1880 to 1887. He was assistant librarian of Harvard University from 1879 to 1882. From 1886 to 1892 he was paleontologist of the United States Geological Survey. He was a member of the National Academy of Science from 1877 and an honorary member of Russian, Spanish, German, British, and other foreign scientific societies. He wrote extensively on subjects connected with natural history, especially butterflies. His best known works are: *A Century of Orthoptera* (1879); *Butterflies, their Structure, Changes and Life Histories* (1881); *Butterflies of the Eastern United States and Canada* (1889); *The Fossil Insects of North America* (1890); *Index to the Known Fossil Insects of the World* (1891); *The Life of a Butterfly* (1893); *Everyday Butterflies* (1899); *Catalogue of the Described Orthoptera of the United States and Canada* (1900); and *Index to North American Orthoptera, Described in the 18th and 19th Centuries* (1901).

SCULPTURE. There was little sculpture of importance at either of the exhibitions of the New York National Academy of Design in 1911. In the spring show R. Hinton Perry had a graceful dancing figure entitled, "Thamara," and J. Scott Hartley two delightful children. Lindsey M. Sterling showed "The Awakening," a good study of a little girl. Robert T. Aiken had a portrait of Henry Arthur Jones, the playwright; and John Flanagan, a well-modeled head of E. G. Kennedy. A vigorous equestrian Indian figure, "Appeal to the Great Spirit," by Cyrus E. Dallin, stood at the entrance of the winter exhibition. Daniel C. French had an exquisite head of a young girl, and Edith W. Burroughs was successful with a portrait of Mrs. Edward Robinson. Furio Piccirilli's nude "Eurydice" had its good points, and Miss Gertrude V. Whitney's head of a Spanish peasant had some strength.

Several monuments were unveiled in the United States. At Lehigh University a bronze mural tablet by James Massey Rhind to the memory of Judge Asa Packer, founder of the university, brought the sculptor much commendation. A life-size bronze figure of Robert G. Ingersoll, by Fritz Triebel, was erected

in Peoria, Ill., the birthplace of the late free-thinker and lecturer. A memorial statue of William Cullen Bryant, by Herbert Adams, was unveiled in New York. A colossal concrete statue of Blackhawk, by Lorado Taft, upon a bluff overlooking the Rock River in Illinois, has grim power. Alexander Doyle's statue of Edwin M. Stanton was unveiled in Steubenville, O., in September. An heroic group of figures bearing immense burdens, by Louis Potter, was exhibited at the Child-Welfare exhibition held in New York.

FOREIGN. Some sculpture of importance was shown at the Paris Salon of the Artistes Français, the most conspicuous place being awarded to Boreau's monument to the artist José Frappa. Bouchard had a monument to the victims of the "République" disaster. Another reminder of recent disasters was Royer Bloche's composition showing a falling aeroplane. Busts of the two Coquelins and of Molière, by Agustin Maillard, were intended for the Théâtre Français. Among the American exhibitors were C. E. Dallin, whose Indian on horseback was seen later at the winter show of the New York Academy of Design; John Boyle, Huxley Daggett, and William H. Dietrich.

An imposing monument in memory of the French Revolution by Sicard, was placed in the Paris Panthéon, and there was dedicated in the church of the Madeleine a votive statue of Joan of Arc by Raoul Larche, representing the maid grasping her sword.

The most important work unveiled in England was the great memorial to Queen Victoria opposite Buckingham Palace in London, upon which Sir Thomas Brock has been working for nearly ten years. An immense double fountain is approached by flights of steps flanked by pedestals surmounted by lions and by groups representing peace, progress, manufactures, and agriculture. Over the fountains are colossal figures symbolizing bravery and intelligence. Around a huge column are the chief statues and groups, with, beneath them, ships' prows. The marble statue of Queen Victoria, in robes of state, with orb and sceptre, is on one side, with figures representing motherhood, justice, and truth on the other sides. The whole monument is surmounted by a gilded bronze Victory. At the Royal Academy show Sir George Frampton's "Peter Pan," busts of King George and Queen Mary by Drury, and a statuette of Mrs. Ridpath by Reynolds-Stephen attracted favorable notice.

A young Polish sculptor, Elie Nadelman, born in Warsaw in 1882, gave an exhibition in Berlin of work that many critics praised as comparable only to Greek art. An ideal classic head, "La Mystérieuse," was singled out for particular praise. In Budapest a memorial to the artist Munkácsy was unveiled. A woman holding aloft a wreath stands by a stone shaft. It is the work of Eduard Telcs.

During the year occurred the death of Thomas Ball (q. v.), who was in his ninety-third year. He will be best remembered for his equestrian statue of Washington and his Lincoln Emancipation group, both in Washington, D. C., and his statue of Daniel Webster in New York.

SEAL. See NAVAL PROGRESS, *Propulsion*.

SEAL FISHERIES. PRIBILOF. See FISH AND FISHERIES.

SEALS. See FISH AND FISHERIES.

SEAMEN'S STRIKE, BRITISH. See STRIKES.

SEARCHLIGHT, MILITARY. See MILITARY PROGRESS.

SEASONAL TRADES. See CHILD LABOR.

SEATTLE. See MUNICIPAL OWNERSHIP, and WASHINGTON.

SEATTLE SYMPHONY ORCHESTRA. See MUSIC.

SECONDARY EDUCATION. See EDUCATION.

SECURITIES COMMISSION. See RAILWAYS.

SEEBACH, WILHELMINE. A German actress, died in May, 1911. She was born in 1833, a sister of the more famous Marie Seebach. She began professional life as a singer, making her first appearance as Annechen in *Der Freischütz* at the Stadt Theater in Hamburg. She soon abandoned opera for the drama and played engagements in various German cities. She earned the title of court actress and ended her active career as a member of the theatre at Königsberg. After the death of her sister, Marie, she devoted herself to the management and development of the various charities for her profession which Marie had founded or planned. These included the Seebach Home in Weimar and the refuge for the children of actors in Berlin.

SEISMOGRAPH. See EARTHQUAKES.

SEISMOLOGY. See EARTHQUAKES.

SENATE. See UNITED STATES, *Congress*.

SENATORS, DIRECT ELECTION OF. See ELECTORAL REFORM.

SENEGAL. A colony (the oldest) in French West Africa (q. v.), with an area of 196,720 sq. kilometers and a population (estimate) of 1,209,719. St. Louis, the capital, had 23,045 inhabitants in 1909; Dakar, 18,718. Imports (1909), 67,912,239 francs; exports, 59,164,917 (peanuts, 43,829,459; rubber, 7,700,580; gum arabic, 1,531,911; live animals, 323,548). Railways, 819 kilometers. Revenue and ex-francs for the colony; 5,052,148 and 4,356,086 for the protectorate. Lieutenant-governor (under the direction of the governor-general of French West Africa) in 1911, J. Peuvergne.

SERUM SICKNESS. See ANAPHYLAXIS.

SERUM THERAPY. During the past few years the development of specific serums has to some extent languished, on account of the increased employment of vaccines or dead cultures of bacteria in combating infections of the human body, vaccines being comparatively easy to prepare, more adaptable, and less expensive. A number of new discoveries have, however, been made with regard to the curative properties of normal serum, human or animal, when injected. Not the least important of these is the remarkable control over hemorrhage which normal human serum, or horse serum, or even diphtheria antitoxin, exerts when injected into a "bleeder." Not only are hemophiliacs (congenital "bleeders") thus influenced; hemorrhage following operations, severe nosebleed, and particularly secondary hemorrhages after operations on the tonsils, have been stopped after one or two injections of serum, horse serum preferably, according to the general opinion. Horse serum has been found to have a decided bactericidal power. Fejes found that the bactericidal action of fresh normal animal blood serum in the test-tube is present also



"WILLIAM CULLEN BRYANT"

HERBERT ADAMS, SCULPTOR. UNVEILED IN BRYANT PARK, NEW YORK CITY, 1911

when the serum is brought into contact with an infectious focus in the tissue. Gergo used normal horse or cattle serum in treating abscesses. He first aspirated the pus, then injected a little serum into the abscess cavity to rinse it out, aspirating all excessive fluid, and covered the puncture hole with a sterile dressing. He states that a single treatment was generally sufficient, and it seemed to be immaterial what germs were involved or where the abscess was located. The functional and cosmetic results were better than those obtained by incision and drainage. The bactericidal serum also seemed to induce a passive immunization, with an increase in the leucocytosis and phagocytosis. Care must be taken to aspirate the superfluous serum.

An illustration of another phase of serum therapy is furnished by a case reported by Mayer and Linser, who treated a woman suffering from recurrent herpes due to pregnancy. The entire body was covered with a purulent eruption. After failure of all other measures, at the end of two weeks, 10 c. c. of normal serum from another woman was injected into the patient to test the tolerance for normal human serum. Three days later 10 c. c. of serum from a healthy pregnant woman was injected, and three days later 20 c. c. from another healthy pregnant woman. The temperature began to subside after the second injection and became normal after the third, the eruption drying up and disappearing. Five weeks afterward the same eruption recurred but in less pronounced form, and it subsided after a single injection of 20 c. c. of serum from a pregnant woman. The authors believe that this method of serotherapy can be successfully applied to most of the toxemias of pregnancy, eclampsia, pernicious vomiting, albuminuria, etc.

Flexner reported from the laboratories of the Rockefeller Institute the development of a specific serum against meningitis due to the *Bacillus influenza* (Pfeiffer's bacillus). Experimentally, the serum was proved to possess the power of curing monkeys infected with the disease. Influenzal meningitis is a very fatal malady, all but six of the fifty-eight cases thus far collated in which the *Bacillus influenza* has been detected in the cerebrospinal fluid having terminated with death. Flexner's success with his serum for epidemic cerebrospinal meningitis seems likely to be duplicated.

SERVIA. One of the Balkan states; a constitutional monarchy in southern Europe. Capital, Belgrade.

AREA, POPULATION, ETC. Total area, 18,649 sq. miles. The population, according to the census of December 31, 1910, was 2,922,058 (2,493,882 in 1900). The marriages in 1910 numbered 29,932; births, 112,235; deaths, 64,450. Belgrade had (1910) 90,890 inhabitants; Nish, 24,949; Kraguyevac, 18,453; Leskovac, 14,236.

Only a small proportion of the inhabitants were able in 1900 to read and write. While primary education is free, state-aided, and nominally compulsory, attendance is poor. There were 1292 primary schools in 1907, with 2373 teachers and 132,051 pupils. There were secondary, special, and normal schools, and a university at Belgrade. The state religion is the Greek Orthodox, but religious liberty prevails.

PRODUCTION. In 1905 the total productive

area was 2,055,000 hectares, of which 1,027,816 were under crops and 25,815 under gardens. Vines covered 33,101 hectares, and orchards 136,940; 322,683 were under meadows, 59,855 under common and 95,709 under other pastures; while 136,399 were under worked and 166,612 under unworked forests, and 50,246 were under miscellaneous crops. The principal crops are shown for two years in the ensuing table:

	Hectares		Quintals	
	1906	1908	1906	1908
Corn	548,168	566,000	7,057,909	5,337,000
Wheat	372,868	386,000	1,595,433	3,128,000
Rye	48,637	48,000	396,271	247,000
Barley	109,349	103,000	1,055,469	730,000
Oats	105,843	101,000	672,748	444,000
Spelt	6,619	.....	29,545	.....
Millet	528	.....	3,688	.....
B'kwheat .	2,054	.....	6,685	.....
Total ...	1,194,054	1,214,000	12,818,748	9,886,000
S. beets...	1,200	.....	134,852	.....
Hay *	319,166	.....	5,345,854	.....
Hay †	6,478	.....	219,599	.....
Plums	182,085	.....	3,443,802	.....
Potatoes ..	12,093	11,000	489,570	175,000
V'ables ..	9,121	.....	673,178	.....
Vines	34,804	.....	574,407	.....

* Meadow. † Clover.

Returns for 1910 show the yield of wheat to have been 3,480,059 quintals; rye, 346,058; barley, 877,735; oats, 629,408; corn, 7,394,670. Area under sugar-beets 1910, 3011 hectares, yielding 636,545 quintals; 1911, 5028 hectares, 1,257,000 quintals.

There were in the country in 1905 989,953 cattle, 3,160,166 sheep, 174,363 horses, 908,108 swine, and 510,063 goats. Sericulture employed (1907) 9850 persons; export of cocoons, £30,538. Coal and lignite output (1907), 269,316 metric tons, valued at 3,045,621 dinars. Milling, brewing, distilling, sugar refining, and iron working are carried on; and quantities of plum preserves are put up for export.

COMMERCE, ETC. The trade for four years is given below in thousands of dinars:

	1907	1908	1909	1910
Imports	70,583	75,635	73,535	84,696
Exports	81,491	92,982	92,982	98,388

Details for two years are found below in thousands of dinars (a=textiles and raw materials; b=agricultural, animal, and forest products, foodstuffs and beverages; c=metals; d=machinery and implements; e=drugs, chemical products, and dye-stuffs; f=minerals and petroleum; g=hides and leather; h=paper; i=articles of luxury; j=stone, pottery, etc.; k=glass and glassware; l=other mdse.):

	Imports		Exports	
	1909	1910	1909	1910
a	21,930	27,128	1,571	1,863
b	15,557	18,637	83,068	86,662
c	13,662	13,550	5,237	8,023
d	6,163	6,394	8	16
e	3,647	5,004	246	861
f	3,441	3,839	2,699	1,308
g	2,996	2,674	21	30
h	1,979	2,892	28	25
i	1,731	796	9	.....
j	989	861	89	75
k	874	798	1	.....
l	56	2,122	5	25
	73,535	84,696	92,982	98,388

Germany (1910) furnished imports and received exports valued at 34,976,000 and 21,915,-

000 dinars respectively: Austria-Hungary, 16,148,000 and 17,822,000; Great Britain, 11,425,000 and 1,672,000; Turkey, 5,935,000 and 23,471,000; France, 3,604,000 and 1,191,000; Italy, 3,645,000 and 1,070,000; Russia, 1,823,000 and 14,000; Rumania, 1,180,000 and 6,570,000; Switzerland, 1,968,000 and 58,000.

Railways in operation at end of 1910, 892 kilometers; telegraph lines, 3540 kilometers; wires, 10,357; number of offices, 217; telephone lines, 2260 kilometers; wires, 12,228; number of post offices, 1500.

FINANCE. The dinar, worth 19.3 cents, is the monetary unit. Revenue and expenditure for three years have been as follows (1910 and 1911 estimates) in dinars:

	1907	1910	1911
Revenue	96,977,513	115,277,745	120,136,459
Expenditure	87,602,641	115,072,843	120,081,803

The main sources of revenue are direct taxes, 33,070,550 dinars in estimate for 1911; monopolies, 30,428,703; state railways, 14,000,000; customs, 12,930,127; domains, 7,995,804; excise, 7,765,000; etc. Principal items of expenditure were for the service of the public debt, 33,613,500 dinars; for war, 27,008,992; public works, 16,895,934; finance, 12,130,219; worship and instruction, 8,352,066; pensions and subventions, 4,759,595; interior, 4,196,482; etc. The total debt stood January 1, 1911, at 679,431,500 dinars.

ARMY. The Servian army is maintained on a skeleton basis with an average strength of about 24,000 officers and men, but during the summer recruits are added for training and the force is increased by some 10,000. Service with the colors varies in amount and often less than the stated two years for the cavalry and artillery, and eighteen months for the infantry, is passed in the ranks. The theoretical organization provides that in a war footing five divisions of the line aggregating some 125,000 men could be put under arms, later to be raised to 200,000 men. This, however, presupposes enough and better trained officers than are to be found in the army, while many of the soldiers are raw, untrained, and undisciplined. The military budget for 1911 showed a small increase on 1910, but there were no indications that the much-discussed army reorganization was being carried out. During the year, 160 quick-firing guns and 160 rounds of ammunition were ordered from Schneiders, while 100 of the old Servian 80-millimeter guns were to be converted. To test the adequacy of the military organization the Drina division on the Bosnian frontier was mobilized for manœuvres on October 16. This was stated to be a trial mobilization which would apply to all the other divisions in turn. It was considered most important and reserve officers, even those living abroad, were recalled to serve with the colors.

GOVERNMENT. The king (Peter I. in 1911) is the executive, acting through a responsible council. The legislative body is the Narodna-Skupshtina, with 160 deputies.

The ministry as constituted June 25, 1911, was composed as follows: Premier and minister for foreign affairs, Dr. M. G. Milovanovitch; finance, S. M. Protitch; interior, M. Trifkovitch; war, General St. Stepanovitch; worship and instruction, Ljubomir Jovanovitch; justice, Dr. D. Arandjelovitch; commerce, agriculture, and

industry, Milan Kapetanovitch; public works, Mihail Ilitch.

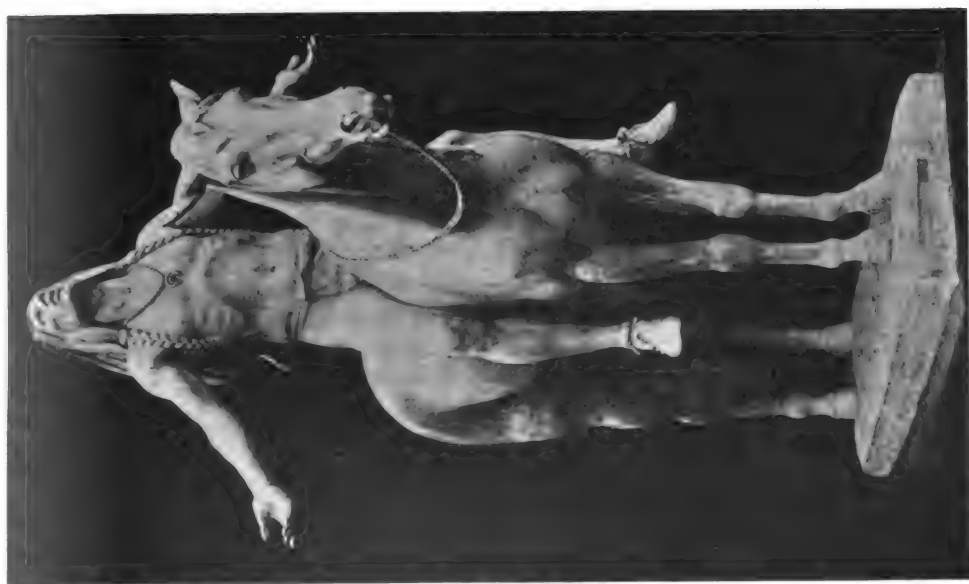
SETTSU. See BATTLESHIPS.

SEVASTOPOL. See BATTLESHIPS.

SEVENTH DAY ADVENTISTS. See ADVENTISTS.

SEWAGE PURIFICATION. Most plants for the treatment of sewage have for their object the removal or reduction of a sufficient percentage of the organic matters in the sewage to permit the sewage to be turned into a stream, a lake, or the ocean without causing a nuisance. Local conditions may be such that no treatment is required, unless it be a rough screening. Sometimes sedimentation alone or aided by a chemical precipitant is needed, and again this may have to be supplemented by filtration and final sedimentation. The object in any case is the removal of a portion of the solid matters in the sewage and the conversion or reduction to a non-putrescible state of the remaining organic matters in suspension or in solution. If public water supplies or oyster beds are liable to be polluted by sewage, extreme measures will be necessary. The safest plan will be to divert the sewage to some point where it cannot infect water or oysters used for human consumption or else to arrange for a new water or oyster supply. To purify sewage so as to render it non-infectious is as yet both an expensive and, as a rule, a very uncertain plan. It may be done or approximated by thorough tank and filtre-bed treatment or by one or the other, or both, followed by disinfection with hypochlorite of calcium (chloride of lime or bleaching powder). During the last ten to fifteen years chemical precipitation as a preliminary process has been giving way to plain sedimentation, while broad irrigation or sewage farming in England and elsewhere in Europe, and intermittent sand filtration in America, have been giving way to either contact beds or percolating filters, the latter having been in the lead for some years past.

SEPTIC, TRAVIS HYDROLYTIC, AND IMHOFF TANKS. Sedimentation, either alone or assisted by chemicals, gives rise to a large volume of sludge, which consists of a few parts of solid matter in a hundred parts total, the balance being water. In the middle or late nineties Donald Cameron, of Exeter, England, put into practical operation on a large scale a modification of plain sedimentation tanks which reduced the volume of sludge. These tanks subsequently came into extensive use the world over. Briefly stated, their principle was the slow passage of the sewage through the tank and the retention of the solid matters at the bottom, while the liquid passed on and out. The exclusion of air from the tank by trapped inlets and outlets, and either by a roof or by a natural scum or mat on the surface of the tank, led to the production of immense numbers of anaërobic bacteria in the tank, and by these and perhaps other agencies a considerable but varying percentage of solids in the sludge is converted into gases and water. Some years later, Travis, of Hampton, England, modified the septic tank, in accordance with ideas suggested by the reports of the Massachusetts State Board of Health, so as to separate the tank into upper and lower compartments. The sewage flow was so divided that the major part went through the upper compartment and the sludge there deposited slipped down the inclined floor into the lower



"APPEAL TO THE GREAT SPIRIT"

Cyrus E. Dallin, Sculptor



"THAMARA"

R. Hinton Perry, Sculptor

SCULPTURE

compartment, to be subjected at length to septic action. By this means the average detention period, and thus the size of the tank, was decreased and it was claimed that a better tank effluent was secured. Still later, Imhoff, a German engineer in charge of sewage disposal for the Emscher sewerage district of Germany (Essen and vicinity), deepened the lower compartment of the Travis tank and changed the details of the upper part. He confined the lateral flow of sewage to the upper compartment, thus using the lower for sludge reduction only, and he provided for emptying the sludge at any time without stopping the use of the tank, doing this by means of the pressure of the tank liquid acting on an outlet controlled by a gate. Many of the cities and towns of the Emscher district now have Imhoff or Emscher tanks. A number of American engineers who have visited these tanks report that they are giving satisfaction, and that the sludge from them is much less objectionable than that from the original or the Travis modification of the septic tank. It should be understood that neither the septic tank nor the Travis or Imhoff modification of it afford more than a partial purification of sewage, although under certain conditions they may give all the treatment that is needed. At some of the Emscher district plants the effluent from the Imhoff tanks is filtered before it is passed into the stream.

American experiments with the Imhoff tank at Chicago and at Philadelphia have given promise of its success for the treatment of American sewage. In 1911 Imhoff tanks were completed at Batavia, N. Y., and Chatham, N. J., and were under construction for Chambersburg, Pa., the Holmesburg section of Philadelphia, and for Atlanta, Ga. There will be three of these plants at Atlanta, of 3,000,000, 5,000,000, and 8,000,000 gallons daily capacity, respectively. The contract for the smaller Atlantic plant was let late in 1910 and for the others early in 1911. It was expected that the smaller plant would be in use by March, 1912, and the others some time in 1913. All the Atlanta plants are substantially alike except in size. Before reaching the tanks the sewage will pass through a grit chamber, and on leaving the tanks it will go through five screens (36 meshes to the inch) at the smaller plants, and roughing filters at the larger plants; and thence to percolating filters composed of 6 ft. in depth of $1\frac{1}{2}$ to $2\frac{1}{2}$ -inch stone, resting on underdrains. The sewage will be sprayed on these beds through nozzles. The sludge from the Imhoff tanks will be discharged upon drying beds consisting of broken stone, with sand above and underdrains below.

The first instalment of the sewage purification works of Baltimore, Md., was completed late in 1911, but so few houses were then connected to the new sewerage system that the purification plant can scarcely be said to have been in use. The works, thus far, really consist of three settling tanks, 120 by 450 feet long, 12 acres of percolating filters, provided with spray nozzles, and two final sedimentation tanks. The sewage will be screened twice, once through coarse grating, before it goes to the settling tanks, and again through fine revolving screens between these tanks and the percolating filters. At full capacity the sewage will be retained eight hours in the settling tanks and will be filtered at the rate of 2,500,000 gallons an

acre a day. After falling eighteen feet from the final sedimentation tanks, and generating power for the use of the plant, the final effluent will flow through 2500 feet of metal-banded wood stave pipe and be discharged into Bock River, a broad arm of Chesapeake bay. Should it prove necessary to do so for the protection of oyster beds fifteen miles below the outlet, which seems unlikely, the final effluent will be disinfected, probably with hypochlorite of calcium.

SEWAGE DISINFECTION with hypochlorite has been used at Providence, R. I., since January 1, 1911, in conjunction with clarification by plain sedimentation instead of the chemical precipitation previously employed. The disinfectant reduces the bacterial content of the sewage. The sewage of Red Bank, and of one or two other small places in New Jersey is also disinfected.

THE PASSAIC VALLEY SEWAGE WORKS, described in the *YEAR BOOK* for 1910 as projected, had not been put under construction up to the close of 1911, although it was reported that plans had been made. Towards the end of the year, testimony was taken on the suit brought by the State and city of New York to prevent the building of these works, as designed. References: Easdale's *Sewage Disposal Works* (London); Clemesha's *Sewage Disposal in the Tropics* (London and Calcutta); *Sewage Experiments at Philadelphia* (Philadelphia, Pa.); Kershaw's *Modern Methods of Sewage Purification* (London and New York—a digest of the various reports of the royal commission on sewage disposal, combined with general information and the author's opinions (Mr. Kershaw was for twelve years engineer to the commission); Rubner's (and others) *Nasser und Abwasser* (Leipzig).

SEX. See **BIOLOGY**.

SHACKLETON, Sir **ERNEST H.** See **POLAR RESEARCH**.

SHALER, ALEXANDER. An American soldier, died December 28, 1911. He was born at Haddam, Conn., in 1827, and was educated at the Brainerd Academy. He entered business with his father at the age of 17 and three years later became proprietor of a stone business which he continued until 1861. In 1845 he joined the Washington Grays, which later became the Eighth Regiment of the New York State Militia. He was transferred to the Seventh Regiment in 1848 and was promoted to be sergeant and first lieutenant. He took part in suppressing the Astor Place riots in 1849. In 1860 he became major of the Seventh Regiment. When the Civil War broke out he was transferred from this regiment to the Sixty-fifth New York Volunteers, receiving the commission of lieutenant-colonel. He fought in the battles of Fair Oaks, Yorktown, Malvern Hill, and Antietam. In 1863 he was promoted to be brigadier-general of volunteers for gallantry. In the battle of the Wilderness he was captured and imprisoned, but was released in time to continue in active service. In 1865 he was brevetted major-general for meritorious services. After the war he served as major-general of the first division of the New York National Guard. He was appointed in 1867 by the governor of New York to reorganize the city fire department of New York City. He brought the department to a high state of efficiency and in 1870 was appointed commissioner. After the great Chicago

fire he was called to that city to reorganize the fire department. He was the founder of the National Rifle Association, commander of the Military Order of the Loyal Legion, and a member of many other learned and patriotic societies.

SHAW, GEORGE BERNARD. See LITERATURE, ENGLISH AND AMERICAN; DRAMA.

SHAW, JULIA A. MEMORIAL PRIZE. See ARTS.

SHEEP CENSUS. See AGRICULTURE.

SHELDON, JOSEPH. An American lawyer, died October 25, 1911. He was born in Watertown, N. Y., in 1828, and graduated from Yale College in 1851. He studied law and after his admission to the bar began to practice in New Haven in 1853. He was an ardent Abolitionist and instituted and managed the earliest Connecticut lecture courses on anti-slavery lines. He made many speeches advocating the election of Abraham Lincoln and organized and drilled several companies of colored militia during the war. From 1868 to 1874 he was in England engaged in the manufacture of brushes. He resumed his law practice in 1874 and was elected an alderman of New Haven in 1879, serving until 1882. From 1881 to 1883 he was judge of the city court of New Haven. He was one of the speakers at the Red Cross conference at Geneva, Switzerland, in 1884. In 1904 he was candidate of the People's party for governor of Connecticut. He was the author of many public speeches, pamphlets, and magazine articles in aid of reforms and various philanthropies.

SHENG HSUAN-HUAL. See CHINA.

SHEPARD, EDWARD MORSE. An American lawyer and publicist, died July 28, 1911. He was born in New York City in 1850. His father died when the boy was six years of age, and the latter became the ward of Abram S. Hewitt. He attended the schools of New York City and then entered Oberlin College. Here he remained but one year. Returning to New York he entered the College of the City of New York, graduating in 1869. After graduation he studied law in the office of John E. Parsons and was admitted to the bar in 1875. In the year following he formed a partnership with Albert Stickney, which continued until the formation of the law firm of Parsons, Shepard & Ogden in 1890. For several years he remained a member of this firm and then withdrew, thenceforward conducting his legal business alone. From his early youth he took an active interest in politics. Before he was admitted to the bar he was one of the organizers of the Brooklyn Young Men's Democratic Club and he served as its president for three years. Out of this organization grew the Brooklyn Democratic Club. From 1883 to 1885 Mr. Shepard was chairman of the Brooklyn Civil Service Board and he was active in preventing the legal granting of franchises to corporations. He became in 1884 a member of the State Forestry Commission and assisted in the investigation of Adirondack and Catskill forest conservation and recommended remedial legislation. In the national campaign of 1892 he strongly advocated the election of Grover Cleveland. A few years later he organized the Independent Democracy and opposed the nomination of David B. Hill for governor. Following the defeat of Hill, Mr. Shepard was practically the dictator of the Democratic organization of Brooklyn. Soon

after, however, he became the candidate for mayor of Brooklyn against Frederick W. Wurrter, Republican, and Edward M. Grout, regular Democrat. He was decisively defeated. Following the nomination of William J. Bryan in 1896 Mr. Shepard voted the Democratic ticket, and became the gold Democrat delegate to the convention that nominated Palmer and Buckner. In the following year he supported Seth Low, the Republican candidate, as mayor of New York. In this campaign he bitterly assailed Tammany Hall, calling it "the most burning, disgraceful blot upon the municipal history of this country." In spite of this, however, he accepted the nomination for mayor at the hands of Tammany against Mr. Low in 1901. In this campaign he was beaten. Mr. Shepard supported Bryan in his second nomination for the presidency in 1900 and was a delegate to the national convention in which the nomination was made. In 1904 he came out strongly for the candidacy of anyone but Bryan. He worked hard for the election of Alton B. Parker. In 1908 he again supported Mr. Bryan on the ground of the necessity for revising the tariff. When the Democratic legislature was elected in the fall of 1910, Mr. Shepard at once became the most prominent candidate for United States Senator to succeed Senator Depew. He failed to receive the support of Tammany Hall and the State Democratic organization and was opposed by William F. Sheehan. After a long deadlock, Mr. Shepard withdrew his name. See NEW YORK, *Politics and Government*.

Mr. Shepard was one of the most eminent lawyers in the United States. His legal work was largely done as counsel for large corporations, and as special attorney-general he directed the prosecution of John Y. McKane, and appeared in other well-known cases. For several years previous to his death he was counsel for the Pennsylvania Railroad in New York City. He wrote a biography of Martin Van Buren in the American Statesmen series and *Memoirs of Dungdale*. He also contributed articles on political, industrial, and educational topics to reviews and magazines.

SHERWOOD, WILLIAM HALL. An American pianist and composer, died January 7, 1911. He was born at Lyons, N. Y., in 1854, and graduated at the Lyons Musical Academy, of which his father was founder and principal. He studied in the United States under several well-known musicians, and with Kullak in Europe, with Deppe at Berlin, and with Liszt at Weimar. He also studied the organ and was for some time organist of the English church at Stuttgart and of the English chapel at Berlin. He played in the principal cities of Europe and Canada and in all parts of the United States. He was director of the Sherwood Musical School and was composer of many pieces of music for the piano. He was the author of *University Extension Course of Music Study and Piano Playing*, and *Music Study and the Mutual Relations of Interpretation and Technic*.

SHIPBUILDING. The annual report of shipbuilding in various countries, compiled by Lloyd's Register, shows that in 1911 the total merchant tonnage built in all countries was 2,650,140—the measurement of 1599 ships—as compared with 1,957,853 tons in the previous year. For a correspondingly high total it is necessary to go back to 1907, when the total tonnage was 2,778,088, and to 1906, when it was

2,919,763, as these were the record years. In 1911 Great Britain contributed 68 per cent. of the total gross addition to the world's merchant fleet, which was a better record relatively than in the two years of abnormal activity already referred to, the proportion for 1907 having been 58 per cent. and for 1906 63 per cent. Taking the average of these annual statistics it is safe to consider 60 per cent. of the tonnage for the world's merchant marine built in Great Britain, leaving only 40 per cent. to be contributed by other nationalities.

The output of warship tonnage throughout the world in 1911 was greater than in any previous year for which figures had been collected by Lloyd's. In fact, the tonnage launched in 1911 exceeded that of any previous two consecutive years combined, being 768,869 tons, as compared with 310,854 tons in 1910 and 404,475 tons in 1909. The highest total previously recorded was in 1901, and consisted of 467,547 tons. In numbers also records were broken, as there were 169 vessels in 1911, as compared with 123 in 1901.

In considering the distribution of this warship tonnage it was pointed out that the British fleet was being increased *pro rata* with that of the other powers combined, although not with some individual powers. During the year 1911 there were launched for the British fleet 41

	1909	1910	1911
Austria-Hungary	47,223	29,297	58,105
Belgium	6,316	6,226	7,663
British colonies	7,941	26,343	19,662
China .....	.....	3,942	2,189
Denmark	7,508	12,371	19,651
France	137,937	105,114	184,184
Germany	228,069	210,367	387,477
Greece	1,385	.....	.....
Italy	33,405	52,073	92,719
Japan	52,694	53,315	81,790
Netherlands	65,522	71,761	93,670
Norway	28,601	37,481	35,535
Portugal	400	3,350	1,450
Russia	4,331	4,395	96,264
Spain	2,174	3,234	6,598
Sweden	7,487	9,869	9,852
United Kingdom	1,117,296	1,277,814	2,034,630
United States	258,243	361,605	287,550
Other countries .....	.....	150	120
Total	2,006,532	2,268,707	3,419,009

SHIPBUILDING IN COAST YARDS. The activity of the year 1911 in the coast shipbuilding yards of the United States was comparatively limited. The battleship *Moreno* for the Argentine Republic, a 27,600 ton vessel, 595 feet in length, was under construction at the Camden yards of the New York Shipbuilding Company, as was also a cruiser for the Chinese government, 2600 tons displacement, and 300 feet over all. Both of these vessels were equipped with turbines, and 3 screws; the *Moreno* with a Curtiss turbine, and the Chinese vessel with Parsons turbines.

The following table shows the tonnage of vessels of 100 tons gross and upwards (excluding warships) launched in the United Kingdom and abroad during the years 1907-1911:

	U. K. tons	Aus.- Hun. tons	Br. Col. tons	Den. tons	Fr. tons	Ger. tons	Italy tons	Jap. tons	Neth. tons	Nor. tons	U. S. tons	Other tons	Total No.	Total tons
1907	1,607,890	8,717	46,443	28,819	61,635	275,003	44,666	66,254	68,623	57,556	474,675	37,807	1788	2,778,088
1908	929,669	23,502	34,181	19,172	32,429	207,777	26,864	59,725	58,604	52,839	304,543	32,981	1405	1,883,286
1909	991,066	25,006	7,461	7,508	42,197	128,696	31,217	52,319	59,196	28,601	209,604	19,276	1063	1,602,067
1910	1,143,169	14,304	26,343	12,164	30,751	159,303	23,019	30,215	70,945	36,931	331,318	29,401	1277	1,957,853
1911	1,803,844	37,836	19,662	18,689	125,472	255,532	17,401	44,359	93,050	35,435	171,569	27,291	1590	2,650,140

Table showing the number and displacement of warships of 100 tons and upwards including warships (launched in the United Kingdom 1907 to 1911:

Year	British tons	U. S. tons	Aus. Hun. tons	French tons	German tons	Italian tons	Jap. tons	Russian tons	Other tons	Total No.	Total tons
1907	133,405	11,590	1,594	33,594	14,800	25,154	57,200	35,317	8,557	142	321,211
1908	49,560	52,860	16,153	21,600	97,660	29,400	2,245	8,800	31,421	127	309,689
1909	98,790	48,639	22,217	95,740	99,116	2,088	375	1,246	36,264	151	404,475
1910	133,525	30,287	14,993	24,063	49,024	19,374	23,100	.....	16,488	122	310,854
1911	221,430	57,526	20,269	53,995	128,340	75,018	37,071	93,260	81,960	169	768,869

vessels, of 221,430 tons, equal to about 29 per cent. of the total tonnage of all powers, or about the average ratio. Between 1896 and 1900 the proportion was 31¼ per cent., between 1901 and 1905 it was nearly 35 per cent., and between 1906 and 1910 it was 29½ per cent. In 1911 Germany had completed 28 vessels, of 128,340 tons, which was more than 30 per cent. greater than in any previous year. Russia launched five vessels, of 93,260 tons, but in 1910 she had launched no warship. Italy made the large addition of 15 vessels, of 75,018 tons, which was equal to the total of the preceding four year combined. The United States added 13 vessels, of 57,526 tons; France 15 vessels, of 53,995 tons; and Austria-Hungary, two vessels, of 20,269 tons. See BATTLESHIPS and NAVAL PROGRESS.

The table at top of next column shows the tonnage of merchant vessels and warships (over 100 tons), launched in each maritime country:

This yard had under way a large side-wheel passenger steamer, the *Washington Irving*, for the Hudson River Day Line, 414 feet long, 86 feet beam; 2 oil steamers for the Standard Oil Company, 342 feet in length, 3500 gross tonnage; and an oil steamer for the Gulf Refining Company 406 feet over all, and an estimated gross tonnage of 5200.

At Seattle, Wash., the Moran Company was building 5 steel steam whalers and a small passenger vessel. The Cramp yards at Philadelphia were building 2 small steel cruisers for the Cuban government, and 6 steel coal barges. At Quincy, Mass., the Fore River Shipbuilding Company had under construction the battleship *Rivadavia* for Argentina, 585 feet over all, and 30,200 tons full load displacement, at an approximate cost of \$11,000,000. This ship, like the *Moreno*, will have 3 Curtiss marine turbines. This company also had under construction the suction dredge *New Orleans* for the United States War

Department, a vessel 315 feet in length, with 4 triple-expansion engines, at an approximate cost of \$400,000. See DREDGING.

At Newport News, the Newport News Ship and Dry Dock Co. was building 2 freight steamers, while at Sparrows Point, Md., the Maryland Steel Company had under construction 5 steel steam freight ships for the American-Hawaiian Steamship Company of New York, each 429 feet 2 inches in length with an estimated gross tonnage of 6600. The foregoing represents the more important work in the coast shipyards of the United States.

The table below shows the ships built and documented in the United States (fiscal years ended June 30), from the report of the commissioner of navigation:

	1910		1911	
	No.	Gross tons	No.	Gross tons
Atlantic & G'l Coasts	601	150,828	588	163,178
Porto Rico	7	131	9	200
Pacific Coast	279	16,870	407	27,234
Northern Lakes	281	168,751	216	94,157
Western Rivers	193	5,488	202	6,393
Total construction	1,361	342,068	1,422	291,162
Sail:				
Wood	121	15,659	81	8,802
Metal	6	3,699	1	1,290
Total	127	19,358	82	10,092
Steam:				
Wood	842	23,005	857	31,267
Metal	94	23,988	112	195,964
Total	936	257,993	969	227,231
Canal, wood	50	5,720	51	5,862
Barges:				
Wood	229	47,060	307	43,258
Metal	19	11,937	13	4,719
Total	248	58,997	320	47,977
Total construction	1,361	342,068	1,422	291,162

GREAT LAKES. During 1911 the ship concerns in the United States on the Great Lakes launched 42 vessels, as compared with 51 in 1910. Of these 9 were bulk freighters, 4 for coast service, as compared with 20 bulk freighters in 1910; 2 baggage freighters for coast service, as compared with 3 in 1910; 2 were passenger steamers, the same number as in the previous year; 2 were oil steamers, 5 oil barges, 8 tugs, as compared with 12 tugs in 1910; 1 fuel lighter, 1 sand steamer, 1 car ferry, as compared with 3 car ferries in 1910; 3 tow boats, 4 scows, 2 light vessels, 1 river lighter, and 1 car float. The American Shipbuilding Company launched 19 of the vessels in 1910, including 4 bulk freighters for the lakes. The 5 lake bulk freighters launched have a carrying capacity of 55,000 gross tons in a single trip, or 1,100,000 tons in an average season of 120 trips. One of the vessels, the *Schoonmaker*, the largest vessel on the lakes, is 617 feet in length and at full draught has a gross carrying capacity of 14,000 tons. It was built at the Ecorse yards of the American Shipbuilding Company.

GREAT BRITAIN. Increased activity in the maritime interests, satisfactory freight rates, and growth of foreign commerce led to a marked gain in the new tonnage launched from British yards in 1911. This was stated at 747,216 tons, or 55½ per cent. greater than in 1910, and 58,000 tons, or 2.8 per cent. greater than in 1906, the previous year of highest totals. The

particulars of the distribution are shown in the accompanying tables. There were no serious labor disputes during the year, which, however, was not one of great profit for the shipbuilders.

No notable fast ocean steamships were built, though a number of large size, the more important of which are summarized in the table. The *Olympic*, launched in 1910, was put into service and made several successful trips until injured in a collision with H. M. Cruiser *Hawke* on September 19 in the Solent.

Aggregates of production in the United Kingdom, 1910 and 1911 (from *Engineering*, London), are given as follows:

	1910 tons	1911 tons
Steam tonnage*	1,985,184	1,244,930
Sailing tonnage	47,874	43,660
Totals	2,033,058	1,288,590
His Majesty's Dockyards	55,600	52,852
Grand totals	2,088,658	1,341,442
Colonial and for.-owned tonnage	400,000	245,636
Per cent. of total	20.0	18.3
Total merchant tonnage†	1,858,624	1,209,255
Per cent. of steam merchant tonnage to total merchant tonnage	97.5	96.5
Horsepower of engines	2,241,500	1,671,600
Per cent. of all naval tonnage to merchant tonnage	13.6	10.9

* Includes warships built in private yards.

† Excludes British and foreign warships.

The above table includes vessels smaller than the 100-ton limit observed by Lloyd's Register.

Notably large merchandise steamers built in British yards in 1911 (from *Engineering*, London) are seen below:

Name	Tons	I.H.P.	Builders
White Star liner Titanic	46,000	51,500	Harland & Wolff, Ltd., Belfast
Cunard liner Laconia	18,150	14,500*	Swan, Hunter, and Wigham Richardson, Ltd.
Royal Mail liner Arianza	15,000	9,500	Harland & Wolff, Ltd., Belfast
Orient liner Orama	12,927	11,250	John Brown & Co., Ltd., Clydebank
P. and O. liner Medina	12,357	14,000	Caird & Co., Ltd., Greenock
Royal Mail liner Deseado	11,500	5,960	Harland & Wolff, Ltd., Belfast
Royal Mail liner Demerara	11,500	5,960	Ditto Ditto
New Zealand liner Remuera	11,276	7,300	Denny, Dumbarton
Aberdeen liner Demosthenes	11,223	7,966	Harland & Wolff, Ltd., Belfast
P. and O. liner Ballarat	11,120	9,000	Caird & Co., Ltd., Greenock
Anchor liner Cameronia	10,963	15,600	D. & W. Henderson & Co., Ltd., Partick
White Star liner Zealandic	10,898	4,800	Harland & Wolff, Ltd., Belfast
Shire liner Argyllshire	10,392	6,500	John Brown & Co., Ltd., Clydebank
Shire liner Wiltshire	10,390	6,500	Ditto Ditto
Waimana	10,389	5,800	Workman, Clark & Co., Ltd., Belfast
Shire liner Shropshire	10,373	6,500	John Brown & Co., Ltd., Clydebank
Talthybius	10,239	5,300	Scott's Shipbuilding & Engineering Co., Ltd., Greenock
Holt liner Anchises	10,046	6,000	Workman, Clark & Co., Ltd., Belfast

* Engines by the Wallsend Shipway and Engineering Company Limited.

GERMANY. After Great Britain Germany ranked next in respect of output of merchant ships, supplying 9.7 per cent. of the year's total, or about its average amount. There were launched 154 vessels, of a total of 255,532 tons, or 96,000 tons more than the output of the previous year, and about 63,000 tons less than the total built in 1906, the record year. Lloyd's figures, however, did not take into account vessels built on the upper rivers, the total of which was about 17,000 tons. The largest vessel was the *Cap Finisterre*, of 14,503 tons, and there were 16 others over 5000 tons. Germany was taking a prominent part in the fitting of oil-engines, and one vessel, of 4500 tons, was launched at Kiel, and 13 other vessels, of an aggregate of 2000 tons, were launched, and were being fitted with internal-combustion engines. (See INTERNAL-COMBUSTION MOTORS.) Germany again had the credit of building the largest steel sailing vessels of the year; there were two of them, the *Peking* and the *Passet*, each of 3100 tons, and both launched at Hamburg. As regards the warship work, there were launched in Germany 28 vessels, of 128,340 tons, which was considerably more than half the output of Great Britain; moreover, the total output was about 30 per cent. higher than in any preceding year.

FRANCE. France in 1911 ranked third, with a total output of merchant shipping of 79 vessels, of 125,472 tons, which was very much higher than in any previous year since 1902, the output having dropped to 35,000 tons in 1906 and to 42,000 tons in 1909. The most notable ship launched was the *Rochambeau*, of 12,678 tons; the only merchant ship hitherto fitted with combination machinery on four shafts, there being two reciprocating and two low-pressure turbine-engines. Another large ship was the *Paul Lecat*, of 12,550 tons, while in addition there were five others over 5000 tons. A notable full-rigged ship was the *France*, of 4920 tons, launched at Bordeaux, and fitted with twin-screw Diesel engines, to be used as auxiliaries in calms or against head winds. The naval work in France included 15 vessels, of 53,995 tons, which, with the exception of 1909, is the highest since 1896, and was indicative of a more earnest desire to bring the French navy to the high position among modern fleets which the history of France so thoroughly justifies.

NETHERLANDS. The Dutch launched for the merchant marine 113 vessels, of 93,060 tons, which exceeded by 22,000 tons the output for 1910, and is the highest recorded by Lloyd's Register. The totals, however, did not include the craft exclusively intended for river navigation, of which over 20,000 tons were launched during 1911. The largest of the Dutch steamers was the *Koningin des Nederlanden*, of 8176 tons, built at Amsterdam. Five other steamers were over 500 tons. Nine of the vessels launched are to be fitted with oil-engines, but the total tonnage of these is only 3100 tons.

JAPAN. Japan launched 109 merchant vessels, of 44,359 tons, a fairly large increase of output over 1910. In this total, however, was included the *Shinyo Maru*, of 13,377 tons, and one other steamer of about 6000 tons. There were also launched six warships, of 37,071 tons, scarcely equaling the amount of some previous years.

AUSTRIA-HUNGARY. Austria-Hungary exhibited a decided increase in the output. In 1910 the total was only eight merchant vessels, of

14,304 tons, whereas in 1911 it was 16 vessels, of 37,836 tons.

NORWAY. The Norwegian output was below the average, being 71 merchant vessels, of 35,435 tons, which, although slightly above the 36,931 tons of 1910, was less than some of the preceding years, when the average was nearer 60,000 tons.

The output of the **BRITISH COLONIES** was 7000 tons less than in 1910. In **DENMARK** the increase was 50 per cent., and included the vessel *Selandia*, of 4900 tons, built by Burmeister & Wain of Copenhagen, and being fitted with Diesel engines. This is the sister ship of the *Jutland*, launched by Messrs. Barclay, Curle & Co., on the Clyde, to be fitted with the same design of engine. The output for **ITALY**, which was 17,401 tons, was the lowest recorded since 1897.

NOTABLE INTERNAL-COMBUSTION SHIPS OF 1911. The tank ship *Vulcanus*, built by the Nederlandsche Fabriek of Amsterdam for the Nederlandsche Indische Tankstoomboot Maatschappij, is a vessel of 1900 tons displacement, with a carrying capacity of 1000 tons. It is fitted with a 500-horsepower six-cylinder 4-cycle Diesel engine, and, after six months' trial, in coast water trips, made a 19-days' run of 3300 miles to Constanta, maintaining a speed of about 7¼ knots, with a consumption of 2.15 tons of coal per 24 hours. The success of this vessel led to the construction of two other vessels, for the same company by the same builders, which were to have double the horsepower. The first internal-combustion ship to cross the Atlantic was the *Toiler*, built by Swan, Hunter & Wigham Richardson, Ltd., in England, having a carrying capacity of 2500 tons and fitted with twin-screw engines of 350 combined horsepower. These engines were built by the Swedish Diesel Motor Company, of Stockholm, and were of the two-cycle type. The third Diesel engine ship of interest during the year was the Italian vessel *Romagna*, constructed for the Trieste, Ravenna, and Fiume service, in which it was operated but a few months, being lost in a November gale. This was a combined passenger and cargo ship, with a speed of 12¼ knots and propelled by two sets of 400-horsepower Sulzer-Diesel engines. An important application of the Diesel engine which promises to have considerable interest in maritime circles was as auxiliary to large sailing ships. The French four-masted ship *Quevilly* during the year was fitted with two sets of 300-horsepower Maschinen-Fabrik Augsburg-Nürnberg A. G. engines. This ship has about 6000 tons displacement, and it was believed that the use of the Diesel engine on such a vessel would prove most economical and advantageous, as it would save towage charges and be available in case of calms, and at the same time there would be no stand-by losses or embarrassment due to any disarrangement or failure, since its function would be merely auxiliary, and the safety of the ship would not be imperiled.

Another type of engine making its appearance during the year on a ship of larger size than any yet constructed for this equipment was the suction gas engine installed on the *Holzappel I.*, a ship of 290 tons gross register, built in England by Eltringham of South Shields, for the Holzappel Syndicate. This vessel had a set of six-cylinder 180-horsepower gas engines built by E. S. Hindley & Company of Bourton, which

transmit their power at 450 revolutions per minute through a Föttinger hydraulic power transformer, by which the speed is reduced so that the propeller revolves much more slowly and efficiently. This vessel made a number of coast voyages about England during the year, at a consumption varying from $1\frac{1}{4}$ tons to 1.6 tons of coal per 24 hours. An older vessel fitted with gas engines was the *Progress*, which had a three-cylinder double-acting two-cycle gas engine installed on an experimental basis, in order to ascertain the conditions under which a new engine best could be designed under conditions approximating those of the steam.

Aside from the foregoing vessels and a large number of submarines there was considerable construction of marine gas engines in progress during the year in Europe. The Woermann liner, a twin-screw ship with double-acting engines of 2400 combined horsepower, which were being built by the Maschinen-Fabrik Augsburg-Nürnberg A. G. and by Messrs. Blohm & Voss, was under construction. The Hamburg American line was constructing a new ship of 9000 tons for its South American service which

Burmeister and Wain engines of 1250 horsepower each; and twin-screw 4000-ton oil tankers for the German Petroleum Company, which were being supplied with engines of 750 horsepower each by Frerichs & Company under license from Professor Junkers. The same builders were also constructing two 9400-ton vessels with 3300 combined horsepower and Junker engines. In addition to this continental work, engines for a 3000-ton capacity ship were put under construction in England by Richardsons, Westgarth & Company. They were of the four-cylinder two-cycle Carls-Westgarth type, and were of 800-horsepower capacity. Barclay, Curle & Company were building eight-cylinder sets of four-cycle 2500 combined horsepower engines, and the Thornycroft Company and the Vickers Company were reported to be working on internal-combustion motors for naval purposes, especially for cruisers.

In the table below are given the steam and sailing vessels of over 100 tons, number and net and gross tonnage of the several countries of the world as recorded in Lloyd's Register for 1911-12.

Flag	No.	Steam		No.	Sail		Total	
		Net tons	Gross tons		Net tons	No.	Tonnage	
British:								
United Kingdom	8,487	10,519,076	17,292,715	847	579,982	9,334	17,872,007	
Colonies	1,414	788,580	1,350,934	694	195,193	2,108	1,546,127	
Total	9,901	11,307,656	18,643,649	1,541	775,175	11,442	19,418,824	
American (United States):								
Sea	1,115	1,117,446	1,715,427	1,647	1,093,257	2,762	2,808,684	
Lakes	579	1,666,524	2,201,866	35	99,757	614	2,301,623	
Philippine Islands	76	28,379	45,087	14	2,884	90	47,971	
Total	1,770	2,812,349	3,962,380	1,696	1,195,898	3,466	5,158,278	
Argentinian	212	91,890	154,851	67	22,228	279	177,079	
Austro-Hungarian	377	528,588	844,981	5	1,507	382	846,488	
Belgian	154	184,963	284,662	5	3,723	160	288,385	
Brazilian	342	161,245	263,211	67	17,297	409	280,508	
Chilean	98	71,646	112,589	42	37,427	140	150,016	
Chinese	66	55,678	86,550	.....	.....	66	86,550	
Cuban	67	37,085	59,988	9	2,563	66	62,551	
Danish	551	406,866	692,718	303	60,036	854	752,754	
Dutch	559	635,155	1,029,596	100	28,691	659	1,058,287	
French	890	887,985	1,542,568	588	434,294	1,478	1,976,862	
German	1,856	2,494,922	4,092,015	343	374,865	2,199	4,466,880	
Greek	322	349,581	560,475	98	25,395	420	585,870	
Haitian	5	2,017	3,387	.....	.....	5	3,387	
Italian	479	620,276	1,026,823	598	313,685	1,077	1,340,508	
Japanese	861	760,867	1,200,975	5	2,245	866	1,203,220	
Mexican	42	21,334	34,733	16	3,878	58	38,611	
Norwegian	1,373	928,084	1,537,873	697	616,458	2,070	2,154,331	
Peruvian	16	10,979	20,130	40	19,909	56	40,039	
Portuguese	98	46,246	77,945	101	27,507	199	105,452	
Rumanian	22	16,690	31,688	1	285	23	31,973	
Russian	649	414,975	710,951	542	184,307	1,191	895,258	
Sarawak	5	2,204	3,673	.....	.....	5	3,673	
Siamese	13	8,307	13,499	.....	.....	13	13,499	
Spanish	526	463,751	758,097	65	17,454	591	775,551	
Swedish	975	476,168	808,898	465	122,584	1,440	931,482	
Turkish	162	85,507	141,778	179	60,914	341	202,692	
Uruguayan	38	30,770	49,918	14	9,984	52	59,902	
Venezuelan	8	2,420	4,232	5	679	13	4,911	
Other countries: Bulgaria, Colombia, Costa Rica, Ecuador, Egypt, Honduras, Liberia, Nicaragua, Oman, Panama, Persia, Salvador, Samos, Zanzibar, etc.....	46	15,549	26,739	21	6,594	67	33,333	
Total	22,473	23,931,751	38,781,572	7,614	4,365,582	30,087	43,147,154	

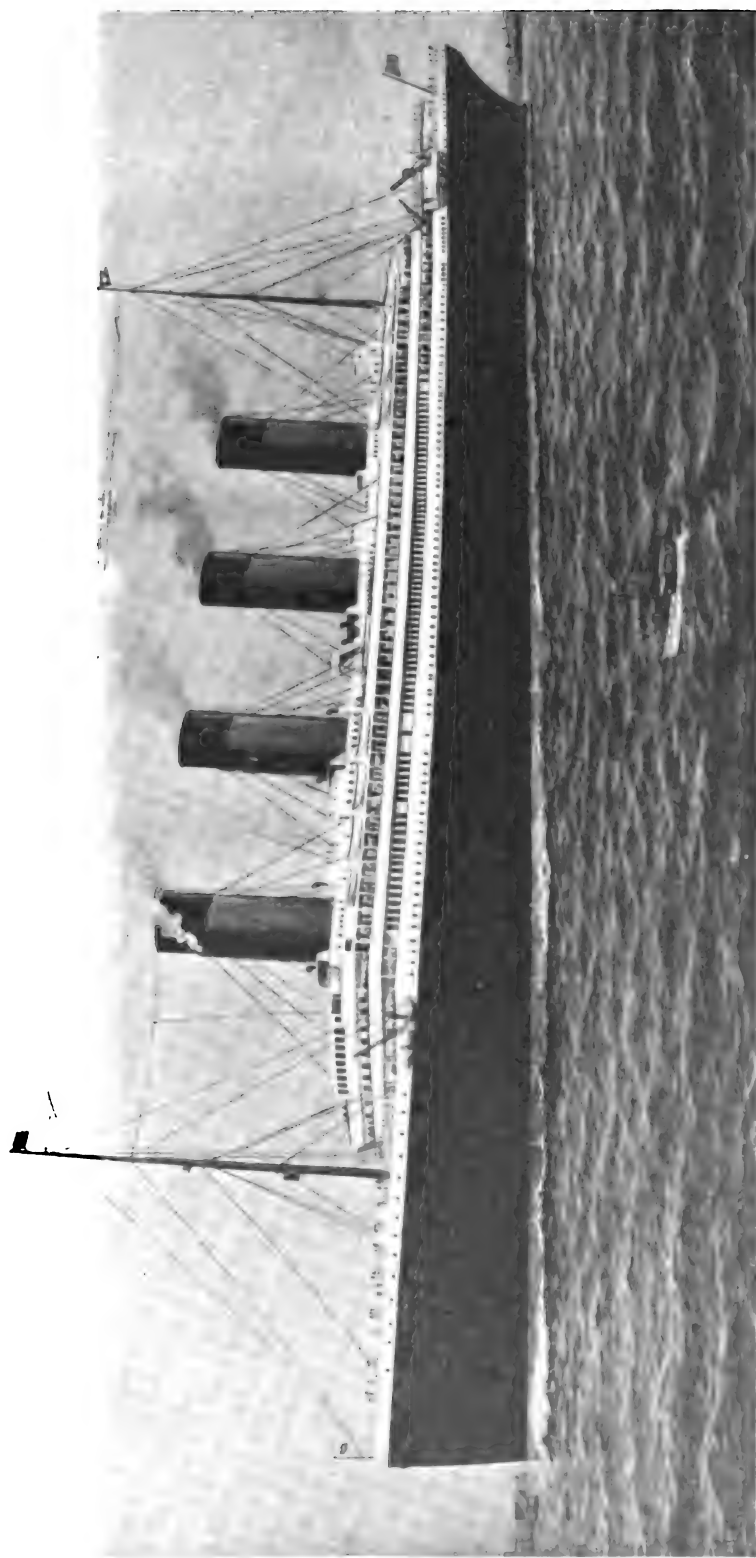
was to be driven by twin engines each of 1500 horsepower. These engines were under construction by Sulzer. Other gas-engine vessels in course of construction during the year were the *La France*, a very large sailing ship with auxiliary engines, built by Schneiders, the *Selandia* and two other tank vessels for the East Asiatic Oil Company, with twin-screw

SHIPS, ELECTRIC PROPULSION OF. See ELECTRIC PROPULSION OF SHIPS.

SHOE MACHINERY TRUST. See TRUSTS.

SHOES. See BOOTS AND SHOES.

SHOOTING. The annual outdoor championship matches of the United States Revolver Association were held from September 10 to September 17 in various cities. George Arm-



Courtesy of the *Engineering Magazine*

THE WORLD'S LARGEST STEAMSHIP, 1911

WHITE STAR TRIPLE-SCREW STEAMSHIP "OLYMPIC" 45,000 TONS REGISTER, 66,000 TONS DISPLACEMENT, 882½ FEET LONG, 94 FEET BEAM

strong of Seattle won the revolver contest with a score of 467. The pistol championship was awarded to Parmly Hanford of New York City, who scored 466 points. A. P. Lane, also of New York, captured the military championship with 605 points. The military revolver team match was won by the team representing the First Cavalry of the Illinois National Guard, which was made up of Lieut. S. Peterson, J. L. Byrne, Col. W. H. Whigam, and John Turner.

In trap-shooting C. C. Collins of Alldine, Ind., won the national amateur championship, scoring 196 targets out of 200. The professional championship was captured by Lester S. German of Aberdeen, Md., who made 198 targets out of 200. German also won the double target championship with 89 out of 100 targets. H. Dixon of Oronogo, Miss., was the winner of the Grand American Handicap Tournament conducted by the Interstate Association. W. R. Davies won the Canadian individual championship.

SHORT BALLOT. See **ELECTORAL REFORM** and **MUNICIPAL GOVERNMENT**.

SHUSTER, W. MORGAN. See **PERSIA, Finance and History**.

SIAM. An independent kingdom in southeastern Asia; a buffer state between British Burma and French Indo-China. Capital, Bangkok.

AREA, POPULATION, ETC. Estimated area, 200,000 sq. miles; population, according to figures published in November, 1910, 7,561,977 (Siamese, Chinese, Shans, Laos, Malays, Burmese, Cambodians, etc.). France and Great Britain have made great inroads upon Siamese territory. Bangkok had, in 1909, 628,675 inhabitants (379,118 males and 249,557 females). Buddhism is the state religion, and the priests are in large measure in charge of educational matters.

PRODUCTION. Rice and teak are the chief products for export. By irrigation the area under rice has been greatly increased. The amount exported in 1908-9 was 518,367 tons; in 1909-10, 952,889. There are 26 rice mills (2 British, 2 German, 22 Chinese) in Bangkok. In the great forests of the north the teak industry is carried on, mainly by British enterprise. Quantity exported 1908-9, 76,930 tons; 1909-10, 76,090. Other products are fruits, pepper, hemp, sesame, and tobacco. Cattle and hides are exported. Rubies, sapphires, and tin are the most important minerals. Rubies exported 1908-9, £4237; 1909-10, £1260; sapphires 1906, £75; tin 1908, 2392 tons and 3713 tons of ore.

COMMERCE AND COMMUNICATIONS. More than 75 per cent. of the oversea trade is with Great Britain, much of it passing through Singapore and Hongkong; though German and Norwegian shipping exceed British.

The trade by countries in the year 1910-11 is shown below in thousands of ticals (one tical = about 38.5 cents); a large part of the Singapore and Hongkong trade is transit en route for Great Britain.

	Imps.	Exps.		Imps.	Exps.
Hongkong	.15,036	38,178	Germany	.3,474	5,982
Singapore	.13,118	41,190	Dutch Colonies	2,497	843
Gr. Brit.	.11,479	7,479	Switz.	734	30
Brit. Ind.	7,092	3,163	Other	8,441	11,864
China	6,334	172	Total	68,205	108,910
			1909-10	69,811	102,570

The export of rice was valued at 91,061,000 ticals; teak, 7,625,000. The chief imports are cotton goods and yarn, treasure, silks, provisions, gunny sacks, kerosene, sugar, opium, metal and metal wares, and machinery. Vessels entered (1910-11), 927, of 865,607 tons; cleared, 928, of 867,005. The merchant marine (1911) was composed of 22 steamers, of 8924 tons, and 43 junks, of 4794.

Railways (1911), 1090 kilometers, of which 984 kilometers are state-owned. A line runs from Bangkok to Korat, with a northward branch to Utaradit. Another line runs from Bangkok to Petchaburi, and is being extended down the Malay Peninsula; when completed it will connect Bangkok and Singapore. Other lines connect Bangkok with Patiew, Paknam, and Meklong via Tachin.

Telegraph lines 984 kilometers; wires, 10,628; number of offices, 131; telephone lines 73 kilometers; wires, 5113; number of post offices, 179.

NAVY. The navy includes 1 protected cruiser of 2800 tons, which serves as a royal yacht; 4 gunboats (500-700 tons each), 3 torpedo boats (90 tons each), 1 torpedo-boat destroyer (380), together with small craft, transports, dispatch boats, etc. The active personnel is made up of 5000 officers and men; the reserve, of 20,000.

FINANCE AND GOVERNMENT. The tical (worth about 38.5 cents, but fluctuating with the price of silver) is the unit of value. The revenue for 1911-12 was estimated at 62,321,000 ticals: 32,913,362 from opium, spirits, and gambling farms; 7,302,928 from capitation taxes, 6,032,900 from customs, 4,285,000 from railways; octroi, 1,785,200; forests, 1,674,600; posts and telegraphs, 1,147,895, etc. Expenditure, 73,910,608 ticals: 11,837,373 for interior, 11,365,460 for war; civil list, 10,362,167; administration, 4,482,968; public works, 4,117,449; finance, 3,151,977; justice, 3,017,284; extraordinary (for railways and irrigation), 11,675,069, etc. The debt stood in 1911 at £7,000,000; paper currency, March 31, 1911, 18,770,220 ticals.

The sovereign (1911, Maha Vajiravudh, succeeded, October 23, 1910) is absolute monarch. He is aided in his executive functions by a council of ministers, nearly all of whom are his relatives. The legislative body is composed of the ministers, other crown-appointed members, and 14 princes of the royal house. The king has absolute power of veto over all legislation. In the various state departments are employed a number of French, English, Germans, Italians, Danes, and Japanese.

SIBERIA. See **EXPLORATION** and **RUSSIA**.

SIDIS, BORIS. See **LITERATURE, ENGLISH AND AMERICAN, Essays and Literary Criticism**.

SIERRA LEONE. A peninsula on the west coast of Africa; a British colony and protectorate. The colony has an area of 4000 sq. miles (population, 1911, 75,572), and the protectorate, about 30,000 (1,300,000). Freetown, with 37,280 inhabitants, is the capital and chief port. The imports were valued in 1910 at £1,162,470 (cotton goods, apparel, coal, hardware, provisions, and tobacco); the exports at £1,249,367 (palm oil, palm kernels, kola nuts, hides, beeswax, rubber, gum-copal, benni-seed, and rice). An extension to the Freetown-Pendembu railway (227 miles) will run to the Rokelle River. The revenue and expenditure (1910) amounted to £424,215 and £361,222 respectively. The governor in 1911 was Sir E. M. Merewether.

SIEVERS, WILHELM. See EXPLORATION.

SILK. The silk industry in 1911 was marked by an increased output of raw silk over that of the previous year, and a decrease in the production of American silk looms. There was, also, a general decline in values, and the lowest raw silk prices were reached early in November. Silk, like other fabrics, felt the effects of the prevailing fashions, and while silk fabrics for dresses continued in vogue the actual yardage was decreased, and prices failed to remain at a satisfactory point. It was said that plain goods were manufactured in the majority of the mills without profit.

The silk market in Europe suffered considerably from political questions, including especially the Moroccan negotiations, the war between Italy and Turkey, and the disturbances in China. The drouth in Europe was also a factor during the year, as the cost of living was increased, and the consumption of luxuries necessarily curtailed. As a result the rate of consumption by European dealers and manufacturers showed a decrease of about 2,000,000 kilograms in the year 1911, which was in part due to the decrease in raw silk shipments from Europe to the United States, where Chinese silks were used in preference.

SILK CROP ESTIMATES. The world silk crop of 1911-1912 at the end of the year was estimated at about 23,200,000 kilograms, or from 3 to 4 per cent. in excess of the crop of 1910. The production of Italy, amounting to not over 3,500,000 kilograms, was again below the average and was less than in 1910, when the production amounted to 3,950,000 kilograms, as compared with 4,250,000 in 1909. The French crop for 1911 was about 100,000 kilograms greater than that of 1910, which was the smallest on record. On the other hand, all of Asia, with the single exception of Canton, showed an increase which more than balanced the European deficiency. The estimated increase in China and Japan was in excess of 10 per cent., though the original figures for the Japanese crop of 170,000 bales were modified later in the season to 160,000 bales, while a similar modification was necessary for the Canton production, where the original estimate of 52,000 bales was reduced to 45,000 bales, or less than the production in 1910. The accompanying table from the *American Silk Journal* gives the estimated totals of the different countries compared with the results for the past two years (in kilograms):

	1911	1910	1909
Europe	4,350,000	4,700,000	5,380,000
Levant	2,850,000	2,700,000	3,100,000
China	3,960,000	3,500,000	3,940,000
Canton	2,160,000	2,620,000	2,240,000
Japan	9,600,000	8,850,000	8,290,000
India	240,000	220,000	240,000
	23,160,000	22,590,000	23,190,000

The average silk production (of the seasons 1908-9, 1909-10, 1910-11, 1911-12) and average consumption (years 1908, 1909, 1910) of the world, computed on the basis of several years by Messrs. Chabrières, Morel & Cie., of Lyons, France, are given in the accompanying table.

While the imports into the United States of silk manufactures remain at about the same amount the increase in the value of the domestic product continues, and for 1910 it was esti-

AVERAGE SILK PRODUCTION, SEASONS 1908-1911

Country	Production	Consumption
France	512,000 Kgs.	4,342,000 Kgs.
Italy	4,109,000 "	1,150,000 "
Switzerland	18,000 "	1,661,000 "
Spain	82,000 "	133,000 "
Austria	217,000 "	807,000 "
Hungary	135,000 "	807,000 "
Russia and the Caucasus	480,000 "	1,440,000 "
Balkan States	201,000 "	25,000 "
Greece and Crete... ..	60,000 "	25,000 "
Salonica and Adrianople	346,000 "	40,000 "
Germany .....	.....	2,562,000 "
England .....	.....	629,000 "
United States .....	.....	9,551,000 "
Brusa, Anatolia	645,000 "	200,000 "
Syria	594,000 "	200,000 "
Persia (exportation)	244,000 "	.....
Turkestan do....	306,000 "	.....
China do....	5,379,000 "	.....
do Canton do....	2,390,000 "	.....
Japan do....	8,644,000 "	.....
India do....	236,000 "	614,000 "
Tonking and Annam do....	15,000 "	.....
Egypt .....	.....	180,000 "
Morocco .....	.....	75,000 "
Algeria, Tunis... ..	.....	70,000 "
Various countries. ....	.....	100,000 "
	24,613,000	24,584,000

mated at \$196,000,000. (See UNITED STATES, Commerce.) In 30 years the position of the imports and domestic manufactures has been revised and the United States supports a flourishing industry. The number of mills manufacturing silk goods on December 31, 1911, totaled 1455 against 1399 operating December 31, 1910, according to the annual issue of *Davison's Silk Trade*. New Jersey led in the number of mills producing broad silks and ribbons, having 203 broad silk mills, against 113 for Pennsylvania, and 50 ribbon mills, against 46 for the latter State. Pennsylvania, however, greatly outnumbered New Jersey in the number of mills for throwing and spinning silk and for the manufacture of silk knit goods. The total number of broad silk mills in the country at the end of 1911 was 17 less than in the previous year, and the number of ribbon mills showed a decrease of 9. There were 3 more throwsters, but it was in the silk knit goods end of the business that the greatest gain was shown, there being 250 such concerns in the United States in 1911, against 165 in 1910, a gain of 85. Twenty-six mills were engaged in the manufacture of cotton and silk mixtures, of which mills there was no total given in the 1910 record. Warpsters, winders, spoolers, quillers, etc., showed an increase of 3, and dyers and finishers, printers, etc., show 130 for 1911, against 123 for 1910.

SILVER. The total production of silver in 1911 was 57,796,117 fine ounces, which was slightly in excess of the product for 1910. The amount and value of the product in 1911 are shown in the following table, which was prepared by the Director of the Mint:

State	Fine oz.	Value
Alabama	174	\$ 96
Alaska	275,691	151,630
Arizona	1,594,428	876,935
California	2,727,386	1,500,095
Colorado	7,530,940	4,142,017
Georgia	225	124
Idaho	7,507,802	4,129,291
Illinois	4,648	2,556
Michigan	507,234	278,979
Missouri	56,228	30,925
Maryland	87	48

State (cont.)	Fine oz.	Value
Montana	11,116,778	6,114,228
Nevada	10,651,571	5,858,364
New Mexico	1,142,335	628,284
North Carolina	2,227	1,225
Oklahoma	168,245	92,535
Oregon	69,116	38,014
Pennsylvania	13,262	7,294
Philippine Islands	8,383	1,861
Porto Rico	51	28
South Carolina	14	8
South Dakota	206,188	113,403
Tennessee	126,683	69,676
Texas	442,486	243,367
Utah	12,679,633	6,973,798
Virginia	45	25
Washington	142,196	78,209
Wyoming	1,009	555
Miscellaneous	826,102	454,356
Total	57,796,117	\$31,787,866

The silver produced in 1910 was almost exactly the same as in 1911.

In 1911 Utah attained first rank as a producer of silver, passing Montana and Nevada, which held first and second ranks in 1910. Utah, Idaho, and California were the only States making notable gains in 1911. Colorado, Nevada, and Montana showed notable decreases. The production of silver in the world in 1911 was about 222,000,000 fine ounces, which was practically the same as the product in 1910. There was a decrease in Mexico owing to disturbed political conditions. There were, however, increases in Canada and Australia.

SILVER MARKET. The market for silver in 1911 was affected chiefly by the conditions in the East and also by speculations carried on by Indian and Chinese capitalists. This forced up the price in the latter part of the year to a point considerably above the uniform level of the earlier months. The monthly average prices of silver in New York and London during the year 1910-11 are shown in the following table, taken from the *Engineering and Mining Journal*.

Month	New York		London	
	1910	1911	1910	1911
January	52.375	53.795	24.154	24.865
February	51.534	52.222	23.794	24.081
March	51.454	52.745	23.690	24.324
April	53.221	53.325	24.483	24.595
May	53.870	53.308	24.797	24.583
June	53.462	53.043	24.651	24.486
July	54.150	52.630	25.034	24.286
August	52.912	52.171	24.428	24.082
September	53.295	52.440	24.567	24.209
October	55.490	53.340	25.596	24.594
November	55.635	55.719	25.680	25.549
December	54.428	54.905	25.160	25.349
Total	53.486	53.304	24.670	24.592

For the amount of silver coined in the United States in 1911, see **UNITED STATES**, paragraph *Coinage*.

SIMPLON TUNNEL. See **SWITZERLAND**, *Railways*.

SINGAPORE. See **STRAITS SETTLEMENTS**.

SINGER, PAUL. A German politician, parliamentary leader of the German Social Democratic party, died January 31, 1911. He was born in Berlin in 1844. His education was obtained at a realschule, and at the age of twenty-five he went into partnership in a millinery manufactory in which he made a considerable fortune. In 1884 he became a member of the Berlin municipal council, and he was one of the twenty-five Socialist members who were elected to the Reichstag in that year. He became almost im-

mediately a member of the party committee and in 1886 was expelled from Berlin under the powers granted the police by the law against socialism as passed in 1878 and renewed from time to time until 1890, the year of the fall of Bismarck. As a result of this expulsion he gave up business and devoted himself entirely to politics. When the law against socialism was municipal council, and he was one of the twenty-years before his death he largely controlled the destinies of the Socialist party and was undoubtedly responsible, in a high degree, for its extraordinary expansion in Germany. He was leader of the party both in and out of Parliament and presided not only over the party meetings, but over many national and international congresses outside. As a speaker he was not brilliant, but his remarkable talent as an organizer had great influence in politics both within and outside his party.

SIPHON LOCKS. See **CANALS**.

SKATING. The international outdoor skating championships were held at Montreal in January. R. L. Wheeler of Montreal and Harry Kaad of Chicago were credited with the best performances. Wheeler won the mile and half mile races and finished second in the 3-mile race. Kaad won the 3-mile event and finished second to Wheeler in the mile. Edmund Lamy of Saranac captured the 220-yard race for the second year in succession. The 220-yard hurdles went to F. J. Robson of Toronto. In the international indoor championships, held at Chicago, Lamy made a clean sweep by capturing the 220-yard race, 440-yard race, half-mile, mile, 2-mile, and 3-mile scramble events. The national outdoor championships were held at Saranac Lake. Lamy won the quarter-mile, half-mile, mile, and 3-mile events. L. Roe of Toronto won the 220-yard race and Wheeler was victor in the 2-mile event. Robson won the hurdles. At the national indoor championships held at Cleveland, Lamy won the quarter-mile race and the 1¼-mile race, and Robert McLean of Chicago captured the half-mile and mile events.

Strunikof, the Russian skater, for the second successive year won the point trophy at the world's championships held at Trondhjem, Norway. He captured every event. The same skater also won the European championship at Hamar, Norway. The winners of the various championships in roller skating in the United States in 1911 were: One mile Eastern professional, Harry Burke of Bridgeport, Conn.; 3-mile Eastern professional, C. Lowney of Newark; 5-mile Eastern professional, Harry Burke; 1-mile Eastern amateur, Edward Burton of Brooklyn; 2-mile Eastern amateur, H. Wimmer of Newark; 3-mile Eastern amateur, J. Timmey of Newark; 5-mile Eastern amateur, H. Wimmer; 1-mile professional, Edward Schwartz of Chicago.

SLEEPING SICKNESS. The British government in 1911 sent out another commission to central Africa to investigate sleeping sickness. The expedition was in charge of Col. Sir David Bruce, assisted by Captain Hamerton and Professor Newstead of the Liverpool School of Tropical Medicine. The commission, which went out under the auspices of the Royal Society, is expected to be absent from England for three years. One of its principal objects is to ascertain whether the fly which is supposed to convey the disease depends on the presence of big game. If this is proved to be so it may involve

the wholesale destruction of wild animals. Bruce, Hamerton, and Bateman have already shown that antelopes may act as a sleeping sickness reservoir. They sought the reason why, though the population had been removed for over two years, the tsetse flies on the north shore of Victoria Nyanza continued to infect monkeys with sleeping sickness. Man in these areas had been replaced by large game and it seemed probable that these might be harboring the parasites, and especially so because the commission had already found that cattle may do so. By a very complete and convincing series of experiments, they proved that antelopes could readily be infected with the *Glossina palpalis* and that these could transmit it to other *glossinae*, who in turn could infect susceptible animals by their bite. Another interesting point is that the trypanosome of sleeping sickness is believed to be conveyed in Nyassaland by a fly other than the tsetse, the chief carrier in other parts of central Africa, for none of this species has as yet been found in this country.

SMALL ARMS. See MILITARY PROGRESS.

SMALL HOLDINGS. See AGRICULTURE.

SMALLPOX AND VACCINATION. There were 23,263 cases of smallpox in the United States during 1911, with 105 deaths, mostly in those States where vaccination is not compulsory. These figures indicate that voluntary vaccination is not an efficient safeguard. Vaccination should be enforced by law in every State. Dock pointed out the fact that of 2000 patients received in the wards of one hospital, only 60 per cent. had been vaccinated, even once. See also VITAL STATISTICS.

SMITH, ARCHIBALD CAREY. An American naval architect, died December 8, 1911. He was born in New York City in 1837 and was educated at the University Grammar School in that city. After learning the boat-building trade under Robert Fish, he built in 1860 the sloop *Comet*, which held the American championship for several years. A few years later he built the *Vindex*, the first iron vessel built in the United States. Following this was the *Mischief*, another iron vessel, which successfully defended the *America's* cup against the *Atlanta* in 1881. In 1885 he devised and superintended the construction of the *Priscilla*, which was also intended to defend the *America's* cup. She, however, was defeated by the *Puritan* and in the following year by the *Mayflower*. Other noted vessels designed by him were the *Iroquois*, the *Meteor*, for the German emperor, and the motor boats *Ailsa Craig* and *Eronel*. In 1911 he designed and built the schooner *Enchantress*, the winner of the King's cup. He was the designer also of a number of the largest steamboats sailing out of New York harbor, among them the *Richard Peck*, *City of Lowell*, *Chester W. Chapin*, etc. In his early days Mr. Smith studied marine painting and painted pictures of many noted yachts. He was a member of the American Society of Naval Architects and Marine Engineers.

SMITH, HANNAH WHITALL. An American quakeress and philanthropist, died May 1, 1911. She was born in Philadelphia in 1832 and was educated in the famous Quaker school of Miss Mary Anna Longstroth. In 1851 she married Robert Pearsall Smith, who was also a Quaker. For a number of years she conducted Bible classes for women in Philadelphia and her home became a rallying point for religious move-

ments. In 1873-4 Mr. and Mrs. Smith went to England to hold religious conferences in several cities, which were attended by hundreds of men and women and eminent clergymen of every denomination and nationality. In 1888 she removed with her family to London, where she lived the remainder of her life. She became one of the most prominent religious leaders in England and one of the most notable women speakers and reformers of the day. She was for many years secretary of the British organization of the Woman's Christian Temperance Union and was closely allied with the English woman suffrage movement. She wrote many books and tracts on religious subjects which went through a number of editions.

SMITH, HOKE. United States senator (Democrat) from Georgia. He was born in 1855 at Newton, N. C., and received his education chiefly from his father, Dr. H. H. Smith, who was a professor in the University of North Carolina. While teaching school he studied law and was admitted to the bar. He was engaged in active practice for thirty years at Atlanta. In 1887 he became proprietor of the *Atlanta Journal* and held this property until 1898. From March 4, 1893, to September 1, 1896, he was Secretary of the Interior in the cabinet of President Cleveland. He was governor of Georgia from July, 1907, to July, 1909, but was defeated for reelection by Joseph E. Brown. In 1910 he in turn defeated Governor Brown, but before the expiration of his term of office was chosen United States senator to succeed Senator Clay. He declined to take his seat in the Senate until the expiration of his term as governor of the State. See GEORGIA.

SMITH, JAMES ROE. An American physician and soldier, died February 11, 1911. He was born in Sackett's Harbor, N. Y., in 1821, and graduated from the University of Michigan in 1848. He studied medicine and took his degree from the University of Buffalo in 1853. There were no notable changes in the faculty during the United States army and served in the West and Southwest until the outbreak of the Civil War, when he was captured by the Confederates at San Antonio, Tex., while on duty there. Upon being paroled he was assigned to duty organizing hospitals and in 1862 was appointed acting surgeon-general by President Lincoln. He later became medical director of the Seventh Army Corps and was brevetted. After the war he served as chief surgeon in various departments of the army. He was retired in 1895 as assistant surgeon-general and medical director of the Department of the East. In 1904 he was made brigadier-general.

SMITH COLLEGE. An institution for the higher education of women at Northampton, Mass., founded in 1875. There were enrolled in the various departments of the college in 1911-12, 1511 students, and the faculty numbered 138. There were no notable changes in the faculty during the year, and no noteworthy benefactions were received. The productive funds amounted to \$1,216,768, and the income to \$75,873. The library contains about 35,000 volumes. The president is Marion Le Roy Burton, D. D.

SMITHSONIAN INSTITUTION, THE. A learned institution in Washington, D. C., established in 1846 under the terms of the will of James Smithson of England, who bequeathed his fortune "to the United States of America, to found at Washington, under the name of the

Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." The institution is independent of government control in its general administration, though founded on a private benefaction by Congress in the name of the United States. It is broadly international in its scope. Its principal activities are (1) to increase knowledge by stimulating and aiding men of talent, in America and elsewhere, to make original researches; (2) to diffuse knowledge by publishing the results of original researches or other important scientific investigations and activities, and by distributing these publications to libraries throughout the world, as well as to interchange such works, together with the publications of other learned institutions and societies, between all civilized countries; (3) to gather in Washington a library of memoirs and transactions of all learned societies, and the most important scientific periodicals, for the use of scholars; (4) to administer the United States National Museum (q. v.), including the National Gallery of Art; the Bureau of American Ethnology; the National Zoölogical Park; the Smithsonian Astrophysical Observatory; the International Exchange Service (for publications); and the Regional Bureau for the United States of the International Catalogue of Scientific Literature.

ANTHROPOLOGICAL INVESTIGATIONS. For more than 60 years the institution has been actively engaged in archaeological and ethnological researches in North and Central America, and during the last 30 years, through its Bureau of American Ethnology, it has carried on an exhaustive study of American Indians. (See **ANTHROPOLOGY**.) In 1911 the bureau conducted various lines of field work among the tribes which composed the Creek confederacy of the Southern States; the Tewa Indians of the Rio Grande Valley, New Mexico; the Winnebago Indians of Wisconsin and Nebraska; the Piegan, Blackfeet, Cheyenne, and Menominee Indians of the Algonquian family; the Chippewa Indians, especially with reference to their music; the Osage Indians, now in Oklahoma, and the Iroquois in New York. A study of the past and present population of the Indians, with the various causes of their decrease, is being conducted.

BIOLOGICAL WORK. Among important biological researches conducted by the institution in 1911 may be mentioned (1) a biological survey of the Panama Canal zone for the purpose of securing natural-history collections from that region and to determine exactly the geographical distribution of the various organisms inhabiting the Isthmus, which is one of the routes by which the animals and plants of South America have entered North America and *vice versa*. When the Panama Canal is completed the organisms of the various watersheds will be offered a ready means of mingling together, the natural distinctions as regards distribution now existing will be obliterated, and the data for a true understanding of the fauna and flora will be permanently out of reach. A great fresh-water lake will be created by the construction of the Gatun dam, and the majority of animals and plants inhabiting that locality will be driven away or drowned, and quite possibly some species may be exterminated before they become known to science. (2) A party of Smithsonian naturalists accompanied a Canadian expedition

engaged in a topographical survey of the British Columbia and Alberta boundary line and the Mount Robson region. The party started in June, 1911. The region visited is a most rugged and broken country in the midst of the Canadian Rockies, containing a great variety of animals and plants, and the naturalists secured a large and valuable collection of birds, mammals, insects, and plants to be added to the National Museum series. (3) A Smithsonian naturalist accompanied Mr. Paul J. Rainey on a hunting trip to the north of the region visited by the recent Smithsonian African expedition, through the country lying between the northern portion of British East Africa and the southern part of Abyssinia, and considerable material of importance has already been received. (4) Bird studies in the Aleutian Islands and Bering Sea were made during the summer of 1911.

GEOLOGICAL WORK. The geological researches by the institution during the year 1911 were confined chiefly to a continuation of field work by Secretary Walcott in the Cambrian strata of the Canadian Rockies, especially at Mount Stephen. The fossils gathered in that region have proved to be the most abundant and most remarkably well-preserved of any discovered in America, and equal to any in the world.

PUBLICATIONS. During 1911 the institution and its branches issued a total of 173 new publications aggregating about 9000 pages of text and 600 plates of illustrations. There were distributed during the year a total of 200,000 copies of various publications. The new works included the Langley Memoir on Mechanical Flight, a quarto book of 300 pages and 100 plates, presenting a detailed account of the experiments by Professor Langley from 1887 to May, 1896, when he demonstrated to the world the ability of a model machine heavier than air to fly under its own motive power, and his later experiments with a man-carrying aerodrome, ending in the year 1903. Other new publications related to all branches of natural and physical science.

NATIONAL MUSEUM. The United States National Museum is the legal depository of the national collections. It is especially rich in the natural history of America, including zoölogy, botany, geology, paleontology, archaeology, and ethnology, and has unique collections of American history, as well as many series relating to fine arts and the industrial arts. It is a museum of record, research, and education, and issues numerous technical and popular scientific publications. The most important item of interest in connection with the museum during 1911 was the completion of all structural work of the new building, just six years after the excavations for the foundation were commenced. It is a building massive and imposing in appearance and admirably adapted for museum purposes. It is well lighted. More than one-half of the 10 acres of floor space is placed at the service of the public in the interest of popular education, while the remaining space is used for reserve collections and laboratories of the scientific departments and divisions and for the maintenance of the building and the operation of the heating, lighting, and ventilating plant. The great exhibition halls of the new building will afford opportunity for the proper display of the national collections illustrative of natural history, and especially such large and striking objects as groups of mam-

mals, skeletons of fossil vertebrate animals, and groups representing the habits and customs of the races of mankind. The accessions received by the museum during 1911 included more than 200,000 specimens of animals and plants, besides 6600 specimens relating to geology and paleontology, and about 17,000 anthropological objects.

ASTROPHYSICAL OBSERVATORY. The Smithsonian Astrophysical Observatory investigates solar radiation and other solar phenomena, and has produced a chart, made by automatic and trustworthy processes, which shows in detail the so-called invisible infra-red spectrum. The work of this observatory is especially directed to making exact measurements of the quantity of the energy of the sun and the effects of the earth's atmosphere in diminishing the quantity available for warming the earth's surface and promoting plant growth. Observations made in 1911 tend to confirm the conclusion that the sun's output of radiation varies from day to day in a manner irregular in period and amount. The definite determination of the laws governing the apparent variability of the "solar constant," it is expected, will be of much value in the probable forecast of climatic conditions from year to year. Measurements have also been made of the transparency, for long wave radiation, of columns of air containing known quantities of water vapor. This line of research promises highly interesting results. Arrangements have been made with several observatories, widely separated through the world, for the use of the standardized silver-disk secondary pyrheliometers, designed by the director of the Smithsonian Astrophysical Observatory. It is hoped thus to secure not only uniformity of radiation measures, but also a more exact knowledge of solar radiation and the influence of the terrestrial atmosphere upon it.

The officers of the institution are Charles D. Walcott, secretary; Richard Rathbun, assistant secretary in charge of the United States National Museum; Frederick W. True, assistant secretary in charge of library and exchanges.

SMOKE PREVENTION. The campaign against unnecessary smoke in cities is being continued in many parts of the United States, by public and private agencies. Most cities which are engaged in the work entrust it to a special department. In New York City the suppression of smoke from the burning of coal and also from automobiles in the city streets is in the control of the department of health, but elsewhere this work does not appear to be regarded as a health-protective function.

Pittsburgh, Pa., passed an ordinance in September, 1911, regulating the emission of smoke from chimneys, locomotives, steamboats, and motor vehicles, providing for a chief smoke inspector and deputy inspectors, establishing smoke standards and providing penalties for violations of the ordinance. No steam boiler or other furnace (except in the case of residences, mill-heating furnaces, and puddling furnaces) can be constructed without filing plans with the chief smoke inspector for the furnace and chimney and indicating means for preventing objectionable smoke. Provisions for the inspection of smoke-producing plants are made. Dense black or dense gray smoke, except for eight minutes within any one hour, is prohibited, and the Ringleman smoke scale, as provided by the

United States Geological Survey, is made standard.

LOCOMOTIVE SMOKE AND RAILWAY ELECTRIFICATION IN CITIES. In many cities a large percentage of the most troublesome smoke comes from railway locomotives. This has led to agitation to compel the railways of some other cities to follow the example of the railways which penetrate New York, by substituting electricity for steam as a motive power. The Massachusetts legislature of 1910 ordered the railways entering Boston to make studies for the electrification of their lines and to submit the studies to a joint board on Metropolitan improvements, which was in turn to report to the legislature. This board submitted a voluminous report, with many data, on January 30, 1911. (The reports in behalf of the railways were abstracted briefly in the *Engineering News*, New York, for December 8, 1910, and lengthy extracts from the report of the board were published in the same journal on February 2, 1911.) A majority of the board (nine members) reported against compulsory electrification, stating that while electrification would add to the comfort and convenience of the public and would have some advantages for the railways, yet it would be undesirable for both the public and the railways, on account of the incomplete state of the art, the higher cost of moving trains by electricity than by steam, and the resulting necessity for increasing rates and for postponing other improvements. At the same time the majority stated that electrification would probably come in the future on through lines as well as at terminals. Seven members of the board, including all the members of the State railroad commission, dissented from the majority report. Of these five believed that electrification was practicable and desirable, while two believed the subject should receive further study.

The results of a Chicago study of the part played by the railways in smoke production in that city was summarized in February, 1911, in a paper read before the Western Society of Engineers by Paul B. Bird, chief smoke inspector of Chicago. (An abstract of the paper appeared in the *Engineering News* for March 2, 1911, and the full paper was published later in the *Journal* of the society). Mr. Bird concluded that although the locomotives operating in Chicago use only 18½ per cent. of the coal consumed in that city, yet they produce 43 per cent. of the smoke and over 50 per cent. of the dirt from coal. He also concluded that "electrification offers the only final and satisfactory solution of the locomotive smoke problem." The Chicago Association of Commerce organized a commission on smoke abatement and electrification in 1911, which included four men appointed by the mayor of the city together with representatives of the railway and general business interests of the city. A review of the history of efforts at smoke abatement in Chicago since 1881, including the work of the committee just named, to the close of 1911 was submitted to the Association of Commerce at the close of the year. The report was made by the chief engineer of the commission, Horace G. Burt, a former president of the Union Pacific Railroad (see *Engineering News*, January 11, 1912, for lengthy abstract of report).

STUDIES IN CLEVELAND. Among the private organizations which have been studying the

smoke problem is the chamber of commerce of Cleveland, O. After three years' study as chairman of the smoke prevention committee of that organization, Mr. E. P. Roberts, a Cleveland engineer, stated in September, 1911, that data secured from a house-to-house canvass indicated that the smoke damage to shelf goods in stores and to house furnishings in Cleveland averages \$12 per capita per year.

A DIVISION OF SMOKE INVESTIGATIONS has been started by the department of industrial research of the University of Pittsburgh, Pa., under the direction of R. C. Benner and W. W. Strong. A scientific study will be made of the effect of smoke on the health of human beings and plants, on buildings, and on the cost of living.

The International Association for the Prevention of Smoke discussed various phases of the problem at its annual convention held in Newark, N. J., in June, 1911. The Coal Smoke Abatement Society of England is conducting an anti-smoke campaign in that country. Late in 1911 it arranged for an International Coal Smoke Abatement Exhibition, to be held in the Royal Agricultural Hall, Islington, London, England, March 23 to April 4, 1912.

SOCCKER. See FOOTBALL.

SOCIALISM. SOCIALISTS AND WAR. The strained relations between France and Germany and Great Britain and Germany and the outbreak of the war between Italy and Turkey led to important demonstrations of the attitude of the Socialists toward war during the year. Soon after Germany sent the *Panther* to Agadir (see MOROCCO) French and German representatives of the trades unions met at the office of the *Neue Welt* in Berlin, and the orators on that occasion (July 28) were profuse in their assertions of international solidarity and of the need of preventing war by all possible means. The fact that this meeting was held under trades union and not Social Democratic auspices led to criticism of the German Social Democracy for not having taken the initiative and for not calling upon the International Socialist Bureau at Brussels to organize a movement for international peace. But Herr Bebel, the leader of the Social Democratic party, declared that the time was not opportune for such a course and that care should be taken not to offend the national sentiment. Nevertheless, there were important Socialist peace demonstrations in several of the large German cities. In September a great demonstration was held as a protest against war between France and Germany at Treptow Park near Berlin. Peace meetings of Socialists were also held during the year in London, Paris, Toulouse, Barcelona, and other European cities. For an account of the official attitude of the German Social Democrats toward the Moroccan question as shown in the debates in the Congress of Jena, see MOROCCO. Opinions were divided. Some upheld the government's course in Morocco, but urged that all possible efforts should be made to come to an *entente* with France. Herr Bernstein gave strong expression to that point of view. He declared that in spite of the good intentions of the French working classes, their threats of strikes and of violent direct action in order to avert war were not likely to come to anything. This had been shown by the ready submission of the French railway men in 1910 when the application of the military code by the Briand

ministry had brought to a close a movement that seemed almost revolutionary. It was of no use to agitate against war without a settled policy. He said the German Social Democrats opposed the French policy of encroaching in Morocco, and then bargaining with Germany for a free hand, and that they did not blame the government for not quietly looking on while France, in violation of the act of Algeciras, seized powers in Morocco that would give her a commercial monopoly. He held that it was right to insist on the observance of treaties and that it was not right for Germans to champion the cause of foreign powers in conflict with their own country. The proper and only course for Germany was to insist on the enforcement of the act of Algeciras. As to Great Britain, she had no right to permit France to violate that agreement and then call Germany to account for her course at Agadir.

In France the Socialists have always favored an *entente* with Germany, and when the Moroccan affair came up the organ of the French Socialists, *L'Humanité*, laid strong emphasis on the need of a Franco-German accord, declaring that hostility between the two nations menaced the cause of European civilization. On the outbreak of the Turco-Italian war there were many Socialist demonstrations on behalf of peace. In Germany the leaders of the party declared that all efforts should be made to maintain the international solidarity. In Italy, where the war was very popular, many Socialists shared in the prevailing imperialism. At the Socialist congress at Modena, October 15, opinions were divided, but later (December 4) the committee of the congress unanimously condemned the war. In the Italian Chamber the Socialist party was split in two over the question, those condemning the war having a majority of only one over those who deprecated any course of action that would embarrass the government. In general, the Italian Socialists were divided on the question, and their opposition was ineffective. In Great Britain the small group of Socialists, known as the Social Democratic party, seemed, despite its German origin, to be distinctly hostile to Germany, and a resolution offered by its leader, Mr. Hyndman, was voted, declaring that the party ought to support the government in the maintenance of an adequate fleet. This action was criticised by continental Socialists as hostile to the spirit of international socialism. If divisions along national lines prevailed what, they asked, would become of that simultaneous action in the event of war which had been urged by Socialist leaders at the great international congresses? At the Birmingham congress of the Labor party, however, a prominent speaker declared that an *entente* between Germany and England was more important than an *entente* between England and the United States. In general, the demonstrations of the Socialists against war, though designed to prove their harmony on that subject, did not have that effect. Sharp lines of division, based on national sentiment, were revealed.

GERMANY. The Social Democratic party, which in Germany is distinctly a party of the people, and apart from its specific socialist doctrines attracts many supporters by its progressive and democratic appeal, showed remarkable gains during the year, and the prospects of the Social Democrats in the approaching elec-

tions of January, 1912, were very favorable. The membership of the party increased from 720,038 in 1910 to 836,562 in 1911. The latter figure included 107,693 women. As the elections of January drew near the question of political alliances arose. Herr Bebel favored alliance with other parties on the second ballot if they pledged themselves to the following programme: Support of universal suffrage and opposition to any restriction of association and meeting, as well as to the laws of exception, to customs duties and taxes affecting the workingman's subsistence, and to the political paragraphs of the penal code. See GERMANY, *History*, and MOROCCO, *History*.

FRANCE. This constantly recurring question of political alliances also agitated the French Unified Socialists in their congress at St. Quentin at Easter. Although syndicalism and Hervéism were no longer so menacing to party unity as formerly, there were still the lines of cleavage between the three groups represented respectively by the opportunist Jaurès, the orthodox Marxist, Guesde, and the revolutionary Blanquist, Vaillant. The Seine federation demanded that there should be no alliance with any other political party on the first ballot and that on the second ballot the Socialists should merely withdraw their candidates if their election seemed impossible. This demand was rejected by the congress by a large majority, which declared for a "return to Republican discipline," and condemned alliances with the Right, but authorized alliances on both the first and second ballots with the Republicans of the Extreme Left. As to the participation of Socialists in a bourgeois ministry, M. Jaurès, who was believed to favor such a course, was not supported by the congress. M. Vaillant declared without contradiction that there was no longer any "ministerialism" in the party, since the Amsterdam congress had decided that question, and that not only the older and orthodox elements of the party were opposed to it, but even the younger members. An extraordinary session of the party was held at Paris on November 2. The attempt of the Guesdists on this occasion to substitute a centralized system for the present federal organizations of the party was unsuccessful. In general, the year was marked by dissensions within the party itself and by the continuance of its attacks upon the syndicalists and especially upon the General Federation of Labor. As a result of the elections of 1910 the Unified Socialists held 76 seats in Parliament. Their vote in that election had been 1,106,017, an increase of 20 per cent. over the vote of 1906. But it was pointed out that their gains in Parliament had been due in part to the votes of the Right and to partisans of proportional representation, and that the increase in the number of enrolled members was by no means so great. In that respect there was a marked contrast between the French Socialists and the Social Democrats of Germany. In the latter country there was an enrolled member for every four electors. In France there was an enrolled member for every fifteen. The customary May Day celebration drew enormous crowds, which showed a disorderly temper and came into conflict with the troops and police. About fifty citizens were injured and one hundred arrests made. About fifty of the police were said to have received injuries.

GREAT BRITAIN. In Great Britain the Socialists are organized in two groups, of which by far the most important politically is the Independent Labor party, with about 60,000 members and comprising the Socialist element in the Labor party. The other organization, known as the Social Democratic party, with Mr. Hyndman at its head, has about 18,000 members. It is doctrinaire in temper and does not participate in politics. It is formed on the model of the German social democracy, but with strictly Marxist doctrines. Its attitude toward war has been mentioned in the above paragraph. An important development in 1911 was its decision to join with certain minor Socialist bodies and form a new organization to be known as the British Socialist party. This followed a conference at Manchester, to which all Socialists were invited and which was said to represent a constituency of 35,000, but neither the Independent Labor party nor the Fabian Society was officially represented. The most prominent figure in the new movement was Mr. Victor Grayson. Its principal object was the amalgamation of all groups which stood for revolutionary, independent socialism.

The Independent Labor party held a congress at Leicester in the beginning of February. Mr. Keir Hardie's proposal for a general strike was voted down. A meeting was held at Birmingham on April 6, at which the question of Parliamentary action was discussed. Mr. Ramsay MacDonald declared that it was the duty of the party to bring pressure to bear upon the ministry without, however, playing into the hands of the Conservatives. On the other hand, Mr. Keir Hardie contended that compromises were dangerous and that the party must be ready to attack the ministry if the latter confined itself to mere reform of the House of Lords. The congress decided that in general the party must take an independent course in Parliament, the Liberals being no less the enemies of socialism than the Opposition.

ITALY. The offer of the portfolio of agriculture in the Giolitti cabinet to Signor Bissolati on March 18 (see ITALY, *History*), caused much discussion in socialist circles, recalling the debate which formerly raged over the question of M. Millerand's presence in the Waldeck-Rousseau cabinet in France some years before. Signor Giolitti's programme included, in addition to electoral reform, important social and fiscal measures of amelioration, and its policy was distinctly anti-clerical. Despite its harmony in some respects with socialistic aims, the idea of Signor Bissolati's acceptance was very repugnant to leaders of the party throughout Europe, the *Vorwaerts*, and other Socialist organs, declaring that it was a violation of the decrees of the international congresses of Paris and Amsterdam, and that it would tend to divide Socialists and to confound their policy. In view of these criticisms Signor Bissolati refused the offer, alleging that he could not submit to a certain official ceremony at court. He held, however, that eventually Socialists would have to participate in Italian governmental affairs. The opinion of his colleagues was divided.

BELGIUM. The important event in the history of the Belgian movement during the year was the alliance with Liberals. At their Easter meeting, at which 500 delegates were present, they discussed trade unionism, the propaganda for universal suffrage, and the best means of

opposing the government's School bill. The meeting resulted in an alliance with the Liberals. (See *BELGIUM, History*.) A Marxist minority broke off, however, and founded a journal, which attacked the Liberal-Socialist bloc and denied the right of a Socialist to accept a cabinet office.

THE NETHERLANDS. At the regular annual meeting of the Dutch Socialists in the spring a movement was started under M. Troelstra on behalf of universal suffrage, male and female. It was proposed that a petition should be presented and that if it were not received a demonstration should be organized in its behalf both in Parliament and among the people. But neither the funds for the movement nor the signatures to the petition were forthcoming, and though the plan stirred the enthusiasm of the congress, it aroused little interest outside, owing perhaps to the belief that every extension of the suffrage had, as a matter of fact, redounded to the advantage of the conservative element.

FINLAND. The Socialists again secured an increased majority of votes in the 1911 elections for the Diet. See *FINLAND, History*.

SWEDEN. As a result of the general election of October, 1911, the Socialist representation in the lower house was about doubled, and they elected four senators. They refused to join with the Liberals in forming a coalition ministry. See *SWEDEN, History*.

AUSTRIA-HUNGARY. Race problems continued to divide the Socialists as well as the trade unionists of Austria. In the elections of June 14 to the Reichsrath the Socialists secured eighty seats, seven less than before, but they scored a great success over the Christian Socialists. The rank and file of Czech Socialists and trade unionists rebelled against the control of their respective party and trade organizations by German Jews in Vienna. As to the Hungarian Socialists, they formed a group apart, preoccupied with their demand for universal suffrage. They addressed a petition on that subject to the king. See *AUSTRIA-HUNGARY, History*.

THE UNITED STATES. Socialistic successes in the United States during the last two years, though in the main local and though often confused with other issues, nevertheless proved a great advance in the movement as a whole. A low estimate of the number of Socialists holding office in the United States in 1911 before the November elections placed it at 435, representing 33 States and about 160 municipalities. About one-half of these held important legislative or municipal positions, including 1 congressman, 1 State senator, and 16 State representatives. The predominant strength of the party was in the Middle West, and the leading State, both in respect to the number of Socialists elected and in respect to the number of communities that elected them, was Wisconsin, Milwaukee alone having over one-eighth of the total number of Socialists in office. Other leading States were Illinois, Minnesota, Michigan, Missouri, Iowa, North Dakota, Kansas, and California. More than half the Socialists in office were from small cities, villages, and townships. The Socialist successes were, for the most part, sporadic and arose from the particular circumstances of the locality, such as the personal characters of the candidates, the corruption attributed to the regular parties, questions of liquor-law enforcement, specific cases of public

ownership, etc. It could not be explained by any single cause or set of causes, and above all it did not indicate the triumph of the extreme doctrinaire type of socialism, but rather of the moderate and opportunist type. Prof. Robert F. Hoxie, on whose careful study of the movement in the *Journal of Political Economy*, for October, 1911, the above statements are based, concludes that "effective socialism in this country is at present a young, vigorous, and very protean movement, for the most part moderate, liberal, honest, and above all essentially democratic. What mainly differentiates it from the democracy of the crowd is that it rests on an evolutionary philosophy rather than on the classical eighteenth-century absolutistic, natural-rights doctrine. It differs from the democracy of the up-to-date reformers in being somewhat more youthfully vigorous and thoroughgoing." The Milwaukee elections of 1910 undoubtedly gave the movement a great impetus. Since the Milwaukee victory the numerical strength of the party is reported to have nearly doubled. For further details, see the articles on the separate States and on the UNITED STATES, paragraphs on *Politics, Elections, History*, etc.

SOCIAL REFORM. See *SOCIOLOGY*.

SOCIAL PHILOSOPHY. See *PHILOSOPHY*.

SOCIAL SERVICE, AMERICAN INSTITUTE OF. Founded in 1898. Object: The gathering and disseminating of information on all branches of social thought and service. It supplies information and advises as to methods by correspondence, its publications, lectures, and its special reference library being open to the public. Its service is free, except when special investigations are required. *The Gospel of the Kingdom*, published monthly by the institute (50 cents per year), contains studies in the application of Christian principles to present-day problems, which are now used by 500 classes in churches, Y. M. C. A.'s, etc., in the United States and Canada. These studies appearing first in the *Homiletic Review* and then with additional material in *The Gospel of the Kingdom* reach some 40,000 readers.

The institute has been a pioneer in many social movements and in educating public opinion as to needed social activities. It has led to the formation of similar organizations in Sweden, Great Britain, Denmark, Italy, Spain, Australia, and Russia, and has collaborators in these and other countries. Officers: President, Dr. Josiah Strong; lecturer, Dr. James H. Eoeb; treasurer, John T. Perkins, Astor Place Bank. Headquarters: Bible House, Astor Place, New York.

SOCIETY OF CHEMICAL INDUSTRY OF GREAT BRITAIN. See *CHEMISTRY, INDUSTRIAL*.

SOCIOLOGICAL SOCIETY, AMERICAN. See *SOCIOLOGY*.

SOCIOLOGY. **THE AMERICAN SOCIOLOGICAL SOCIETY.** The sixth annual meeting of this society was held in Washington, D. C., December 27-30. The presidential address by Prof. F. H. Giddings of Columbia University was on the Quality of Civilization. He emphasized the need of social solidarity, which our complex ethnic composition made difficult of attainment. He, however, laid stress on certain factors in assimilation in American life, which would bring about a true solidarity of thought and feeling in the American population. These fac-

tors are the standardization of consumption, the scientific view of nature, and the interest in social justice. The first topic of discussion was the city as a socializing agency. Dr. F. C. Howe of New York City discussed the City Plan, Prof. H. P. Woolston of the College of the City of New York discussed the Urban Habit of Mind, and Mr. Paul U. Kellogg of *The Survey*, the City and Industrial Cleavage; Miss Jane Addams of Hull House, Chicago, spoke on Recreation as a Public Function in Urban Communities, and Mr. C. W. Hetherington discussed Recreation in Rural Communities. Both speakers laid stress on the value of recreation as a school for true democracy. Selection of Population by Migration was discussed by Prof. H. P. Fairchild of Yale University, Prof. Walter F. Willcox of Cornell University, Prof. J. W. Jenks of the Immigration Commission, Prof. Emily Balch of Wellesley University, and others. Professor Fairchild discussed the objectionable features of immigration and the remedies proposed. Professor Willcox minimized evils of immigration and pointed out that it is cheaper to import people than it is to rear them. Professor Balch favored the coming of immigrants under contract, provided they were protected by the government in making such contracts, advocated a general minimum wage for all immigrants, and declared the literacy test stupid. Professor Ross impressively presented the outcome of the present substitution of cheaper labor and the consequent introduction of lower standards of living. He pointed out that the English, Scotch, German, and Scandinavian laborers have practically ceased to come; that the Italians will give place to Slavs, Greeks, and Armenians, who in turn will be followed by Afghans, Hindus, and other Asiatic coolies, until a complete equalization of labor conditions here and in Asia has been established. A committee previously selected to inquire into the subject matter for a course in sociology submitted its report. The following officers were elected for 1912: President Albion W. Small, Chicago University; vice-presidents, E. A. Ross, University of Wisconsin, and George E. Vincent, president of the University of Minnesota; secretary-treasurer, Scott E. Bedford; additional members of the executive committee were Charles Cooley, Prof. J. P. Lichtenberger, and Emily Greene Balch.

BIBLIOGRAPHY. Among the books issued in 1911 bearing upon sociological problems and sociological theory may be mentioned: *The Social Basis of Religion*, by Simon N. Patten; *Woman and Labor*, by Olive Schreiner; *Greek Immigration to the United States*, by Henry Pratt Fairchild; *Racial Decay*, a compilation of evidence from world sources, by O. C. Beale; *La dépopulation de la France*, by J. Bertillon; *The Immigration Problem*, by J. W. Jenks and W. J. Lauck; *The Mind of Primitive Man*, by Franz Boas; *Le conflit de la morale et de la sociologie*, by Simon Deploige; *Black and White in South-East Africa*, by Maurice Evans; *The Race Conflict*, by W. P. Livingstone; *L'uomo secondo le origini l'antichità, le variazioni e la distribuzione geografica*, by G. Sergi; *Papers on Inter-Racial Problems Communicated to the First Universal Races Congress*, July 26-29, 1911, G. Spiller (ed.); *Die Urgeschichte des Menschen*, by H. Tuschlag; *Half a Man; the Status of the Negro in New York*, by Mary W. Ovington; *Marriage, Totemism, and Religion*, by J. L. Ave-

bury; *Origin of Civilization*, by the same; *Dawn of Mediterranean Civilization*, by A. Mosso; *Man-Made World, or Our Androcentric Culture*, by C. P. Gilman; *Transition to an Objective Standard of Social Control*, by L. L. Bernard; *Sociology Applied to Practical Politics*, by J. B. Crozier; *Christianizing the Social Order*, by Walter Rauschenbusch; *Social Evolution and Political Theory*, by G. T. Hobhouse; *Morality of Women*, by Ellen Key.

SOCIAL REFORM. One of the growing characteristics of our day is the increased attention given to plans for social betterment. These plans cover a wide range of industrial and social life, and many of them are still in the experimental stage. The following books are among the most important and suggestive in the new lines of these investigations: *Legal Doctrine and Social Progress*, by Frank Parsons; *Social Pathology*, by S. G. Smith; *Industrial Causes of Congestion of Population in New York City*, by E. E. Pratt; *Housing of Working Class*, 3d ed., by Allen; *Juvenile Labour Exchanges and After-Care*, by A. Greenwood; *The Almshouse; Construction and Management*, by Alexander Johnson; *One Thousand Homeless Men: A Study of Original Records*, by Alice Willard Solenberger; *Industrial Coöperation in Bristol*, a study in democracy, being an account of the rise and progress of industrial coöperation in Bristol, by Edward Jackson; *Socialism and Individualism*, by Sydney Webb and others; *The Vocational Guidance of Youth*, by M. Bloomfield; *The Social Engineer*, by E. L. Earp; *The New Social Democracy*, by J. H. Harley; *Ferdinand Lassalle*, by G. Brandes; *Social Adjustment*, by Scott Nearing. See also lists of books under **WORKINGMEN'S INSURANCE**, **PENOLOGY**, and **WOMEN IN INDUSTRY**. See **PHILOSOPHY**.

SOIL ORGANISMS. See **BOTANY**.

SOILS. The year 1911 was one of marked progress in soil surveying and in the study of the exact composition, properties, bacterial activities, adaptations, and management of soils.

SOIL SURVEYING. The United States Bureau of Soils completed during the year 60 soil surveys in 21 States, aggregating a total area of 95,420 square miles, of which 25,096 square miles was mapped in detail, and 70,324 square miles in a broader, more general way on the basis of reconnaissance surveys. The total area surveyed and mapped by the bureau to date in the United States is over 500,000 square miles. While such work was most active in the United States, it also received considerable attention in other countries. A. D. Hall and his colleagues completed and reported an elaborate survey of three counties, Kent, Surrey, and Sussex, of southeastern England. Notable progress in similar work was reported from Australia and South Africa, although not on the systematic plan followed in the United States.

The value of soil surveys as a basis for selection and adaptation of crops and for further experimental study of soils is now widely recognized, and such surveys have become sufficiently extensive to be useful for this purpose, especially in the United States, where in a few States as much as half the area has been mapped and in many others from a fourth to a third has been covered. The areas surveyed therefore furnish a good basis for the series of publications which has been begun by the Bureau of Soils on the use, limitations, and possibilities of the important soil types of the United States.

SOIL CONSERVATION A QUESTION OF NATIONAL WELFARE. That questions of soil conservation, which can only be answered fully by means of accurate soil surveys and studies, are actively engaging public attention and are recognized as of great national importance is shown by the prominence given to the discussion of such questions at the Conservation Congress at Kansas City, Mo., September 25, 1911, where the subject was elaborately discussed by the President of the United States; Henry Wallace, president of the congress; ex-Governor Hoard of Wisconsin, and others. The President was optimistic and predicted that by 1960 methods of soil conservation and management will have so far advanced that the United States, with a population of 200,000,000, "will still continue to feed her millions and feed them well out of her own soil." The other speakers were less optimistic, deploring the soil-robbing methods which still so widely prevail among American farmers, and calling attention sharply to the fact that notwithstanding the great effort which has been made to introduce better methods of farming, production has not yet overtaken consumption in the United States, and there has been no marked increase in the average productive capacity per acre of American farm lands. That soil investigation is now receiving much attention on the scientific side was evidenced by the prominence given to this subject at the Washington meeting of the American Association for the Advancement of Science in December, 1911.

STUDY OF THE ORGANIC MATTER OF THE SOIL. In the scientific studies of soils reported during 1911 the most important advances noted were in the knowledge of the composition and properties of the organic matter of the soil and of the relation of the activities of micro-organisms to soil fertility. Heretofore the inorganic or mineral constituents of soils have received more attention than the organic constituents, with the result that our knowledge of the mineral matter is more complete than that of the organic matter or so-called humus.

During 1911 Schreiner and his associates of the Bureau of Soils reported the isolation and study of a large number of definite organic compounds derived from soils, some toxic, some beneficial. Jodidi, Patten, and others also reported investigations which go far toward completing our knowledge of the important nitrogenous compounds of the soil.

These investigations on the organic matter of the soil have an important bearing on the bacterial activity of the soil, since the organic matter furnishes the chief food of the soil organisms, and knowledge and control of the organic matter of the soil will no doubt enable us to control in large measure the activities of the soil organisms.

SOIL STERILIZATION AND SANITATION. Further studies on soil sterilization have emphasized certain important phases of both coöperative and antagonistic relations of various groups of soil organisms. A continuation of investigations at Rothamsted has given results which appear not to bear out the theories previously enunciated, and referred to in last year's review, regarding the possible power of protozoa to limit the action of beneficial ammonia-forming bacteria. These later investigations have shown that at least one important group of soil, protozoa is not active in the soil except possibly to a very limited extent at the surface, and

therefore cannot be considered as playing any important part in restricting the activities of the ammonia-forming organisms. H. L. Bolley further elaborated his theory that the beneficial effect of soil sterilization is due more to destruction of organisms causing plant diseases than to any action on chemical and bacteriological properties of the soil. These investigations have at last made it plain that a fertile soil is not a dead, inert mass but a living thing.

NEW SOIL JOURNAL. The year 1911 was marked by the beginning of the publication of the first scientific journal devoted exclusively to the soil—*Internationale Mitteilungen für Bodenkunde*—under the editorship of G. Murgoci, E. Ramann, and F. Wahnschaffe, with a large list of collaborators prominent in soil investigation in different countries. This journal was established in response to a resolution of the International Agrogeological Congress, to which reference was made in last year's review, and is intended to be international in scope.

GENERAL CONCLUSIONS. In general it may be said that progress in soil investigations during 1911 was along lines noted in previous reviews, which have enlarged our knowledge, especially as to the physical, chemical, and biological properties and processes which go to determine soil fertility. The work in 1911 emphasized particularly the important functions which certain hitherto disregarded soil constituents and nitrogen-fixing and transforming organisms play in soil productiveness.

LITERATURE. Important contributions to the literature of soils during the year were a *Bibliography of Eolian Geology*, especially as related to movement of soil material, by S. C. Stuntz and E. E. Free, which appeared as Bulletin 68 of the Bureau of Soils; and *The Soil Solution*, by F. K. Cameron.

SOKOTRA. See ADEN.

SOLEY, JAMES RUSSELL. An American lawyer and author, died September 11, 1911. He was born in Boston in 1850 and graduated from Harvard College in 1870. Following his graduation from Harvard he became assistant professor of English at the United States Naval Academy. While there he studied law and was admitted to the bar in Washington. In 1873 he was made head of the department of law and history at the Naval Academy. He shortly afterwards made a tour of inspection of the foreign naval academies for the Naval Department and in 1878 was on duty at the Paris Exposition. In 1882 he was transferred to Washington and assumed charge of the library of the navy and of the publication of the Civil War records of the army. He delivered in 1885 a course of lectures on naval history before the Lowell Institute in Boston and again in 1888 on European neutrality in the Civil War. In 1890 he was appointed by Gen. B. F. Tracy Assistant Secretary of the Navy. He removed to New York in 1893 and became a member of the law firm of Boardman, Platt & Soley. He retired from this firm some years previous to his death and practiced law independently. Mr. Soley was counsel for Venezuela at the arbitration of the boundary dispute between that country and Great Britain in 1899. He was the author of many books, including *History of the Naval Academy* (1876); *Foreign Systems of Naval Education* (1879); *The Blockade of the Cruisers* (1883);

The Boys of 1812 (1887); *Sailor Boys of '61* (1888), and *Life of Admiral Porter* (1903).

SOLUTIONS, CHEMICAL. See **CHEMISTRY**.

SOLUTIONS, SOLID. See **MINERALOGY**.

SOUTH, UNIVERSITY OF THE. An institution of higher learning, founded in 1858, at Seawane, Tenn. The students in all departments of the university in 1910-11 numbered 205, the professors and instructors 19. The university maintains a college of arts and sciences, a theological department, a university extension department, and a preparatory school. Its property is valued at \$800,000, and its endowment at \$300,000. During the year work was begun on a science hall, the gift of Andrew Carnegie. The library contains about 35,000 volumes. Vice-chancellor, 1911, William B. Hall.

SOUTH AFRICA, UNION OF. A British dominion, occupying the southern portion of the continent of Africa, containing four provinces—the Cape of Good Hope, Natal, the Transvaal, and the Orange Free State (qq. v.). Capital, Pretoria (Transvaal).

Total estimated area, 473,184 sq. miles. Total population in 1904, 5,175,824; in 1911, 5,958,499. Imports (total Union) in 1909, £31,411,150; exports, £2,010,821. Imports 1910, £38,940,694 (merchandise, £34,007,178; government stores, £2,720,189; specie, £2,313,327); exports, £56,428,455 (colonial produce, £54,684,038; reexports, £1,414,645; specie, £329,772). Included in the exports are diamonds and gold from Rhodesia, Congo, and Portuguese East Africa to the value of £2,489,343, a sum which is not included in the imports. Total net tonnage entered (1910), 11,494,855 (coastwise, 6,288,867; other, 5,205,988), of which 9,709,625 were British; cleared, 11,494,355 (coastwise, 6,468,636; other, 5,025,699), of which 9,725,127 British. Total railways, 7221 miles. Total revenue (1909-10), £18,144,346; expenditure, £18,143,886. Estimates (revised) for 1910-11, £14,014,000 and £13,536,000; estimates for 1911-12, £14,859,000 and £16,166,000, the deficit to be made up by £1,150,000 railway contribution. The projected cigarette duty is expected to yield £45,000. The Union began with a total debt of £116,500,000, of which £75,234,000 was for railways and harbors.

The South Africa act (1909) constituting the Union provides for the appointment of a governor-general, aided by an executive council whose members he appoints. The legislative body consists of a senate of 40 members (8 appointed, 32 elected) and a house of assembly of 121 elected. A provincial council in each province has power to legislate by ordinance on certain subjects specified in the act and on such other subjects as may be delegated to it. The provincial executive is an administrator, appointed by the governor-general in council.

The ministry in 1911 was as follows: Governor-General, Viscount Gladstone of Lanark; Prime Minister and Minister of Agriculture, Louis Botha; Minister of Railways and Harbors, J. W. Sauer; Minister of the Interior, of Mines, and of Defense, J. C. Smuts; Minister of Justice, J. B. M. Hertzog; Minister of Education, F. S. Malan; Minister of Finance, H. C. Hull; Minister of Lands, A. Fischer; Minister of Native Affairs, H. Burton; Minister of Commerce and Industries, Col. G. Leuchars; Minister of Public Works, and of Posts and Tele-

graphs, D. P. de V. Graaff; Minister without portfolio, Dr. C. O'Grady Gubbins.

HISTORY

PARLIAMENT. The first Parliament under the Union was opened on November 4, 1910, and ended on April 25, 1911. The status of political parties was somewhat indeterminate. The Dutch organizations, Het Volk, the Afrikaner Bond, and Orangia Unie had combined in the so-called Nationalist party under the leadership of the president of the new commonwealth, General Botha. The Unionist party, the chief opposition party, under Sir Leander Starr Jameson, comprised the Cape Unionists, the Orange Free State Constitutionalists, and the Transvaal Progressives. There were lesser outlying groups, including the Natal Independents, who viewed the two chief parties with suspicion, but on the whole inclined to the side of the government. As a result of the first elections, parties in the Union House of Assembly were distributed as follows: Nationalists, 67; Unionists, 37; Independents, 13; and Labor members, 4. One of the first acts of the new Parliament was a measure laying a tax of 10 per cent. on the profits of the Cape and Orange Free State mines. In the course of a speech on January 21 General Botha declared himself in favor of protection for the country as a whole, not for one part against another, and announced the intention of the government to build irrigation works on a large scale and to take measures for the promotion of closer settlement. His speech was an appeal for moderation, and he declared that it was necessary to unify the ministerial organizations of the respective provinces. The chief question before Parliament was the status of the English and Dutch languages in the schools. The matter was referred to a select committee, who submitted a majority report in favor of a compromise based on the principle that until the pupil had passed through Standard IV, instruction should be carried on in the language of the home, and that after that parents were free to choose the language of instruction. The report further recommended the provision that no English teacher shall be disqualified for ignorance of Dutch and no Dutch teacher for ignorance of English.

The third reading of the Post Office bill passed the Union Assembly on April 3. This measure was important as indicating the strong stand of the government against the shipping ring. It provided that no mail contract should be awarded to anyone who gives rebates in order to secure exclusive dealings, or who is associated with any shipping or other combination which the governor-general considers injurious to South African trade. The results of the session also included the Stock Disease act for stricter rules concerning the negligence of farmers, the Prisons act concerning juvenile delinquents and recidivists, the Mines Regulation act, the Stamp act, and important measures for the consolidation of the Union. On the other hand, little was done toward equalizing the burden of taxation and the civil service was not reorganized. Political parties continued to be divided on somewhat artificial lines, neither the government party nor the opposition showing much coherence.

THE IMMIGRATION QUESTION. The Minister of the Interior, Mr. Smuts, in the course of a





speech in the House of Assembly on February 28 paid a tribute to the staunch stand of the Indians on behalf of what they regarded as their rights. He said, however, that the checking of immigration was the government's settled policy and could alone solve the problem. After correspondence with the imperial authorities an Immigrants Restriction bill, designed to remove the most serious grievances of the Asiatics, was introduced and passed its second reading in March. The minister of the interior declared that it conformed to Lord Crewe, the imperial colonial secretary's suggestion of uniformity in immigration rules. It excluded anyone unable to write, to the satisfaction of the immigration officer, fifty words in such language as that officer chose to dictate. The minister declared this test superior to the educational test hitherto employed in South Africa, that it had worked well in Australia, and that it could be applied only against undesirable aliens. Provision was made for the admission of a limited number of educated Asiatics each year. The bill passed its second reading without a division, but was withdrawn because of lack of time for discussion. Subsequently an agreement was made with the Asiatics for the introduction of a similar measure at the next session and for the relaxation of the regulations in the meanwhile.

On May 23 General Botha announced that the difficulty over the status of the Asiatics was settled. Measures were framed in a conciliatory spirit toward the Indians. These permitted those Indians who had not registered on account of the passive resistance movement to do so if they applied within six months. A number of those who had been deported under the acts of 1907 and 1908, or who had left on account of passive resistance were permitted to return and apply within six months. It was provided that six educated Indians could come in each year without registration, and that well-known and educated Indians might be exempted from the thumb print test on application.

Meanwhile, on January 3 the Indian viceroy's legislative council had prohibited the emigration of indentured Indians to Natal after July, 1911. The effect of this was greatly to increase the rate of wages. It was estimated that the wages of natives were doubled, and those of Indians increased by 50 per cent.

THE LANGUAGE QUESTION. It was evident toward the end of the year that the premier, General Botha, definitely favored a compromise on the question of language in the schools. It became known at that time that the leaders in the Orange Free State and Natal provinces were ready to amend the education laws of their respective provinces on the basis of the compromise recommended by the select committee of Parliament. General Botha, in announcing his belief that the provincial laws would be amended to this end, declared that it would leave nothing that would tend to separate the two races. General Hertzog, who had so long been the uncompromising advocate of Dutch in the schools, and had stirred up bitter opposition, based on the principle of a compulsory use of both languages, announced in November that the Orange Free State leaders had agreed to amend the provincial education law in regard to the language question, because they believed it would promote harmony and coöperation between both races.

PARTY CONGRESSES. The Nationalist party congress was held at Bloemfontein on November 21. The object of the party, as set forth by General Botha, was to create a South African Union. Although political unity had been attained, there remained the greater task of uniting the white races into a national state. The best means of securing this end was by coöperation, and his attitude on the education question was based on that principle. As to the specific policies, he advocated plans of irrigation, land settlement, and adequate measures for military defense. The Unionist congress, which was in session at the same time at Durban, laid especial emphasis on the comprehensive plan for military defense, including a system of compulsory military training and full recognition of imperial obligations by the increase of the naval contribution.

OTHER EVENTS. The subject of defense figured largely in political discussion throughout the year. A defense scheme was outlined by Mr. Smuts, but it was opposed by Mr. Merri-man, on the ground that the best defense was proper government. It was argued that now that South Africa had become a nation, it must assume national responsibilities. Lord Methuen, in March, urged a national army and regular military training. A South African defense bill, based on the principle that every citizen is liable to military service in time of need, and to regular military training, was under consideration at the close of the year. In the early part of the year public opinion was greatly disturbed by a series of assaults upon white women by the natives. Several cases occurred in the Witwatersrand alone, and some of them in broad daylight. A petition was presented by the women of South Africa asking for severe sentences for the perpetrators of these outrages. The Duke of Connaught returned to London in January from his tour of South Africa, and at the end of that month received an address from the city corporation at the Guildhall. In the course of his reply, after describing the hospitalities received during his visit, he warned his hearers against thinking that the formation of the union meant the beginning of the millennium. He referred to the danger of fierce political controversies and political mistakes, but declared his conviction that the South Africans would never abuse their system of free government, and would successfully solve the serious problems that confront them. The committee on closer settlement, appointed by the Senate, issued a report advocating the raising of a loan and the expenditure of £500,000 a year for land suitable for settlement, and for advances to settlers.

SOUTH AFRICA, IRRIGATION IN. See IRRIGATION.

SOUTH AUSTRALIA. A state of the Commonwealth of Australia. The capital is Adelaide, with 192,294 inhabitants, including suburbs, according to preliminary returns of the census of April 3, 1911. The area, including the Northern Territory, is stated at 903,690 square miles:—South Australia proper, 380,070 square miles; Northern Territory, 523,620 square miles. The final returns of the 1911 census placed the population of South Australia at 408,559, showing an increase of 14.01 per cent. since 1901; Northern Territory,

3310, showing a decrease of 31.20 per cent. The returns are exclusive of aborigines. The executive authority is vested in a governor, who is appointed by the British crown and is assisted by a responsible ministry. The legislative power devolves upon a parliament of two elective houses, the Legislative Council and the House of Assembly. Governor (1911), Admiral Sir Day Hort Bosanquet; premier (1911, since June 2, 1910), John Verran. See AUSTRALIA.

HISTORY. The Northern Territory, comprising the hinterland of South Australia, which extends all the way across the continent, was taken over by the federal government in 1911. The South Australian government decided in February upon an extensive irrigation scheme by means of the Murray River, in the region around Lake Barmera, the area covered to be much larger than that involved in any other irrigation scheme in Australia. It was announced by the treasurer in February that 3,000,000 acres of agricultural land would be thrown open by the government, which was also taking measures to welcome immigrants, and to make advances to settlers with a limited amount of capital. Pursuant to this policy the government decided to revive the old immigration act, which assisted immigrants under certain conditions; and a new homestead act was placed on the statute book providing for the appropriation of a sum not to exceed £100,000 a year for advances to settlers for the following purposes: The building or enlargement of a dwelling; the purchase of a dwelling house, and the payment of a mortgage. This was not to apply to anyone with an income of more than £300, or an income of which four-fifths was not the product of his personal exertion.

SOUTH CAROLINA. POPULATION. The Thirteenth Census showed a population in 1910 of 1,515,400, compared with 1,340,316 in 1900, an increase of 13.1 per cent. in the decade. The principal cities with their populations in 1910 and 1900 are given below (the figures in parentheses are for 1900): Charleston, 58,733 (55,807); Columbia, 26,319 (21,108); Spartanburg, 17,517 (11,305); Greenville, 15,741 (11,860).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 176,434, compared with 155,355 in 1900. The land in farms was 13,512,028 acres, compared with 13,585,014. The improved land in farms was 6,097,999 acres, compared with 5,775,741 in 1900. The average number of acres per farm was 76.8, compared with 90 in 1900. The value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, in 1910 was \$392,128,314, compared with \$153,591,159 in 1900. The average value of all property per farm was \$2223, compared with \$989 in 1900. The average value of land per acre was \$19.89, compared with \$7.14 in 1900. Of the farms in the State, 65,213 were operated by owners and managers, and 111,221 by tenants. Of the farms operated by their owners, those free from mortgage numbered 47,535; under mortgage, 15,020. The native white farmers numbered, 79,424; foreign-born white, 212; negro and other non-white, 96,798. Of the non-white farmers, all but 26 are negroes. There were 25 Indians and 1 Chinese. The various kinds of domestic animals, poultry, and bees

were valued at \$45,131,380 in 1910 compared with \$20,199,859 in 1900. The cattle numbered 389,882, valued at \$7,088,259; horses and colts, 79,847, valued at \$10,147,178; mules, 155,471, valued at \$23,830,361; swine, 665,211, valued at \$2,552,344; sheep, 37,559, valued at \$81,302. The poultry of all kinds numbered 2,946,414, valued at \$1,206,615. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	1,790,000	32,578,000	\$29,646,000
1910	1,707,000	31,580,000	25,896,000
Wheat ....1911	83,000	946,000	1,164,000
1910	77,000	847,000	1,067,000
Oats .....1911	345,000	7,038,000	5,067,000
1910	336,000	7,056,000	4,586,000
Rye .....1911	3,000	30,000	44,000
1910	3,000	30,000	44,000
Rice .....1911	10,000	117,000	88,000
1910	17,000	357,000	268,000
Potatoes ..1911	10,000	700,000	854,000
1910	10,000	900,000	945,000
Hay .....1911	64,000	a 69,000	1,173,000
1910	67,000	84,000	1,344,000
Tobacco ..1911	13,600	b11,016,000	1,388,016
1910	25,000	15,750,000	1,354,500
Cotton ...1911	.....	c 1,480,000	.....

a Tons. b Pounds. c Bales.

There were produced in the State in 1910, 1853 fine ounces of gold, valued at \$38,324, an increase over the value of the product of 1909 of \$27,271. A small amount of silver was also produced.

EDUCATION. During the school year 1910-11 the public schools of South Carolina enrolled 354,270 pupils; of these, 180,830 were whites, and 193,440 were negroes. The average attendance for the State was 235,028; 107,552 whites, tracts, of which 927 have voted tax levies for school purposes amounted to \$2,517,091.09, and the total expenditures amounted to \$2,168,513.41. The State is divided into 1901 school districts, of which 927 have voted tax levies for educational purposes. During the year 223 districts either voted original levies or increased existing levies.

South Carolina maintains the University of South Carolina, at Columbia, Clemson Agricultural College, at Clemson, Winthrop Normal and Industrial College, at Rock Hill, the Citadel, the Military College of South Carolina, at Charleston, the State Normal, Industrial, Agricultural, and Mechanical College, at Orangeburg, and special schools for the deaf, the blind, and for the reformation of boys.

FINANCE. The report of the treasurer for the fiscal year 1911 showed a balance on December 31, 1910, of \$648,730. The total receipts during the year were \$3,208,790, and the total expenditures, \$3,132,164, leaving a cash balance December 31, 1911, of \$725,356. The public debt of the State at the end of the fiscal year amounted to \$6,528,485.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the deaf, dumb, and blind institutions, State Hospital for the Insane, South Carolina Industrial School, and the State Prison.

POLITICS AND GOVERNMENT

The legislature met in annual session in January, 1911, and the most important measures enacted are noted in the paragraph *Legislation*, below.

The most interesting political events of the

year related to the conflict between Governor Blease and the State Supreme Court over the appointment of special judges. The governor declared he would not commission as judges those who were not his friends, and presented an "eligible list." The Supreme Court held that in refusing commissions to its nominees, the governor violated the constitution, and the chief justice characterized his course as "lawless." In a speech made at Spartanburg on July 4, Governor Blease said that impeachment proceedings had been threatened against him, and that if he were impeached and removed from office he would be a candidate for the United States Senate. Chief Justice Ira B. Jones, of the Supreme Court of the State, resigned from that office to become a candidate for governor against Governor Blease in 1912. The governor withheld all papers from the pardon board and granted more than 325 pardons and paroles. He vetoed more acts than had been vetoed in the previous 20 years. Most of them were passed over his veto. Blease declared null commissions of all notaries public, held "at pleasure of governor" for alleged purposes of ousting four or five negroes. Over 3000 were affected and most of them got new commissions.

There were no elections for State officers in 1911, but an election for mayor occurred in Charleston on November 7. The election resulted in the success of the candidate who, for the first time in the history of the State, was not a member of the conservative or aristocratic segment of society. The successful candidate was John P. Grace, who was chosen over T. T. Hyde by a plurality of 185 votes. The election was, in a measure, a contest of labor against capital, and the successful candidate was identified with the labor element.

OTHER EVENTS. On October 28 a storm and high tides caused damage to property in Charleston and along the coast of over \$1,500,000. The lower section of the city was entirely inundated for over eighteen hours. The rice industry received a severe blow, the losses resulting in abandonment of many plantations. Managers of the National Corn Exhibition decided in July to hold the 1913 exposition in Columbia, S. C., the first time in the South. Columbia provides a building and guarantees \$40,000 expenses.

LEGISLATION. Important measures passed at the legislative session of 1911 included the following: The child labor law was amended by making more strict the statute prohibiting the employment of children under 12 years of age, and prohibiting the employment of children under the age of 16 between the hours of 8 P. M. and 6 A. M. A measure was passed providing a mode of procedure against corporations charged with a violation of the criminal laws of the State. The law for the protection of game fish was amended. Measures were enacted requiring marriage licenses, and provision was made for the regulation of their issuance. The hours of labor of women employed in mercantile establishments is limited to 60 hours a week, not to exceed 12 hours in any one day, and to work not later than 10 P. M.

STATE OFFICERS. Governor, Coleman L. Blease; Lieutenant-Governor, C. A. Smith; Secretary of State, R. M. McCown; Attorney-General, J. F. Lyon; Treasurer, R. H. Jennings; Comptroller-General, A. W. Jones; Superintendent of Education, J. E. Swearingen; Adjutant-

General, W. W. Moore; Commissioner of Agriculture, E. J. Watson; Commissioner of Insurance, F. H. McMaster—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Ira B. Jones; Justices, C. A. Woods, Eugene B. Gary, D. E. Hydrick; Clerk, U. R. Brooks—all Democrats.

STATE LEGISLATURE, 1911. Democrats, Senate, 43; House, 124; joint ballot, 167.

The representatives in Congress will be found in the article UNITED STATES, Congress.

SOUTH DAKOTA. POPULATION. The Thirteenth Census showed a population of 583,888, compared with 401,570 in 1900, an increase of 45.4 per cent. in the decade. The principal cities, with their populations in 1910 and 1900 are given below (the figures in parentheses are for 1900): Sioux Falls, 14,004 (10,286); Aberdeen, 10,753 (4087); Lead, 8392 (6210); Watertown, 7010 (3352).

AGRICULTURE. The acreage, production, and value of the chief crops for 1910 and 1911 are given in the following table:

		Acreage	Prod., bu.	Value
Corn	.....1911	2,310,000	50,820,000	\$26,935,000
	.....1910	2,100,000	52,500,000	21,000,000
Wheat	.....1911	3,700,000	14,800,000	13,468,000
	.....1910	3,650,000	46,720,000	41,581,000
Oats	.....1911	1,540,000	11,396,000	4,900,000
	.....1910	1,550,000	35,650,000	10,695,000
Rye	.....1911	13,000	130,000	99,000
	.....1910	13,000	221,000	135,000
Potatoes	.....1911	56,000	4,032,000	2,822,000
	.....1910	55,000	2,420,000	2,057,000
Hay	.....1911	459,000	a 252,000	2,142,000
	.....1910	510,000	408,000	2,897,000

a Tons.

MINERAL PRODUCTION. The production of gold in the State is considerable. It comes, altogether, however, from several mines in the Black Hills. The gold production in 1910 was 260,267 fine ounces, valued at \$5,380,200. The output of silver was 120,600 fine ounces, valued at \$65,100. The gold produced in 1911, according to the preliminary figures of the director of the mint, was 359,444 fine ounces, valued at \$7,430,367, a marked increase over the production of 1910. The bulk of the gold is produced by the Homestake mine, at Lead, and the installation of additional facilities greatly increased the production at this mine in 1911. The silver produced in 1911 was 206,188 fine ounces, valued at \$113,403.

MANUFACTURES. The Thirteenth Census, taken in 1910, included statistics of manufactures in the State. These are for the calendar year 1909. The results of the census will be found summarized in the table below:

	Number or amount	
	1909	1904
Number of establishments....	1,020	686
Persons engaged in manufactures	5,226	3,582
Proprietors and firm members	942	649
Salaried employees	682	441
Wage earners (average number).....	3,602	2,492
Primary horsepower	17,666	11,154
Capital	\$13,018,000	\$7,585,000
Expenses	15,787,000	11,246,000
Services	2,914,000	1,716,000
Salaries	616,000	294,000
Wages	2,298,000	1,422,000
Materials	11,476,000	8,697,000
Miscellaneous	1,397,000	833,000
Value of products.....	17,870,000	13,085,000
Value added by manufacture (value of products less cost of materials).....	6,394,000	4,388,000

As will be seen from this table, the number of manufacturing establishments showed a marked increase in the five-year period, 1904 to 1909. The capitalization in that period nearly doubled. The greatest number of manufacturing establishments, 825, are those connected with printing and publishing. The largest amount invested, however, was in establishments connected with flour-mill and grist-mill products. While these establishments numbered but 285, the value of the product was \$6,208,000. Manufactories of butter, cheese, and condensed milk, 139 establishments, produced products valued at \$2,686,000; printing and publishing establishments, \$1,076,000; bread, and other bakery products, \$1,161,000; lumber and timber products, 451 establishments, \$945,000. The total number of persons engaged in manufactures in the State in 1909 was 5226, of whom 4588 were males, 638 females. The largest number of persons engaged in any one industry were those employed in the printing and publishing establishments. The majority of the wage earners employed in the manufacturing industries of the State are employed 60 hours or over a week.

The wage earners 16 years of age or over numbered 3602; those under 16, 46, or a total of 3648.

EDUCATION. The chief efforts in educational lines in the State were directed in 1911 toward securing State aid for such rural districts as are unable to maintain an efficient school, for normal training and high schools, and for such districts as may wish to consolidate for the purpose of forming a graded school. Considerable attention was given to the standardization of colleges and normal schools. There were in the State on June 30, 1910, 118,199 persons of school age. The average daily attendance was 49,433. The total expenditure for schools in 1910 was \$2,299,575.

FINANCE. The report of the treasurer for the fiscal year ending June 30, 1911, showed cash on hand July 1, 1910, \$602,569. The receipts for the year amounted to \$3,760,213, and the disbursements to \$4,001,626, leaving cash on hand June 30, 1911, of \$421,156.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the School for the Deaf, Northern Hospital for the Insane, Deaf and Dumb Asylum, School for the Blind, and the State Penitentiary.

POLITICS AND GOVERNMENT

The legislature met in 1911, and the most important measures enacted are noted in the paragraph *Legislation*, below. There were no elections for State officers during the year.

In the week of June 11-16 there was celebrated at Yankton the jubilee anniversary of Dakota Territory. Many pioneers of the State were present, and the chief guest of honor was Dr. William Jayne, of Springfield, Ill., who was appointed in 1861 first governor of the newly created territory by President Lincoln. In conjunction with this celebration was observed the twenty-ninth annual commencement of Yankton College, the oldest college in the State. A striking pageant, showing the history of the Territory and the State, was given on the afternoon of June 16.

On October 21 the distribution of the lands of the Sioux Indian Reservation was begun at Gregory. The reservation contained about 4000

homesteads, and there were nearly 50,000 applicants. The distribution was carried on by the drawing of lots, and the winner of the first choice was Mrs. Mary J. Kendall of Rapid City, S. D.

LEGISLATION. Important measures enacted at the legislative session of 1911 include the following: It is provided that the proposed constitutional amendments and laws or measures submitted to electors under the referendum or initiative shall be brought to the attention of the electors by the county auditor, who shall send to them through the mail pamphlet copies of such amendments, laws, and measures, in lieu of by publication of the same in newspapers. It also provides that such amendments, laws, and measures shall not be printed in full upon the official ballots at the election, but that such ballots shall merely show their titles. Provision is made for an indeterminate sentence upon certain classes of persons convicted of crime. This term shall not be less than the minimum, nor longer than the maximum term provided by law for the crime for which the prisoner was convicted, and the length of the sentence is to be determined by the warden and Board of Charities and Corrections upon facts and conclusions established by a scientific study and observation of the habits, disposition, character, conduct, and general tendencies of the convict. The anti-treat liquor law enacted in 1909 was repealed. An employers' liability law was enacted to affect common carriers by railroad while engaged in interstate commerce. This provides that contributory negligence by the employee shall not bar recovery, but that damages shall be diminished by the jury in proportion to the amount of negligence attributed to the employee.

STATE OFFICERS. Governor, R. S. Vessey; Lieutenant-Governor, Frank M. Byrne; Secretary of State, S. C. Polley; Treasurer, George G. Johnson; Auditor, H. B. Anderson; Attorney-General, Royal C. Johnson; Superintendent of Education, C. G. Lawrence; Commissioner of Lands, F. F. Brinker; Commissioner of Insurance, O. S. Basford—all Republicans.

JUDICIARY Supreme Court: Presiding Judge, Ellison G. Smith; Justices, Dick Haney, Charles S. Whiting, J. H. McCoy, and Dighton Corson; Clerk, Frank Crane—all Republicans.

STATE LEGISLATURE, 1911. Republicans, Senate 34, House 99, joint ballot 133; Democrats, Senate 11, House 5, joint ballot 16. Republican majority, Senate 23, House 94, joint ballot 117.

The representatives in Congress will be found in the article UNITED STATES, *Congress*.

SOUTHER, JOHN. An American engineer and inventor, died September 12, 1911. He was born in South Boston, Mass., in 1816. He served an apprenticeship in a foundry in South Boston, and when but 17 years of age made a pattern for the iron fence around the Boston Commons, a part of which is still in use. In 1849 he sent around Cape Horn the first locomotive and steam shovel for the railroad from Sacramento to Fulton. During the Civil War the United States government had exclusive use of his work and the machinery for sixteen war vessels was built at his plant. He also constructed machinery for removing Ft. Hill in Boston and that for the filling in of Back Bay. His machinery was used also for the Suez Canal and the French Panama Canal. In 1851 he instituted a 10-hour schedule for his employees.

He was the first manufacturer in the United States to do this. For more than twenty-five years he manufactured all the sugar machinery that was used in Cuba. He invented the steam shovel, dredger, and other devices, and built the first locomotive to take a train across the continent.

SOUTHERN NEW ENGLAND RAILWAY. See RHODE ISLAND.

SOUTHERN NIGERIA. The old protectorate of Southern Nigeria united with Lagos in 1906 to form a colony and protectorate (British). The combined area is 77,260 sq. miles, and the estimated population 6,000,000. Lagos, with 57,000 inhabitants, is the capital and chief port. Much has been accomplished in the endeavor to open up the interior to British trade, and a new rubber industry and cacao and cotton raising are being developed. The imports in 1910 were valued at \$5,122,370; exports, \$5,258,452 (palm oil, palm kernels, mahogany, gum, ivory, and rubber). A railway runs from Lagos to Jebba (306 miles) on the Niger, thence to Zungeru (429 from Lagos), and Minna (467), where it meets the Northern Nigeria Railway. The revenue and expenditure for 1910 amounted to £1,933,235, and £1,592,281 respectively. Sir Walter Egerton was governor and commander-in-chief in 1911.

The evils resulting from the sale of liquor to the Indians had long drawn public attention to Southern Nigeria. The United Committee for the Prevention of the Demoralization of the Native Races by the Liquor Trade brought the matter to the attention of the secretary of state for the colonies on July 11, urging the government to take measures for the restriction or prohibition of the importation. The secretary replied that the government hoped for an early meeting of the Brussels Conference, which would settle the question.

SOWDON, ARTHUR JOHN CLARK. An American merchant and public official, died June 2, 1911. He was born in Boston in 1835 and graduated from Harvard College in 1857. From 1863 to 1872 he was engaged in the real estate and mortgage business in Boston. In the latter year he retired from business. In 1874 he was a member of the commission of fifteen chosen to resist the inflation of currency and secure a fixed standard of value. In 1879-80 he was a member of the Massachusetts House of Representatives. He was active in political matters for many years. Although a Republican, he advocated the election of Grover Cleveland and in the last years of his life acted with the Democratic party in national matters. He was conspicuous in the affairs of the Protestant Episcopal Church and was a delegate to five triennial conventions. He was president of the Church Association for thirty years. For nine years he was governor of the Society of Colonial Wars in Massachusetts, and from 1905 to the time of his death was the head of the National Society.

SPAIN. A constitutional monarchy of western Europe. The capital is Madrid.

AREA AND POPULATION. The area of continental Spain is 190,050 sq. miles; with the Balearic and Canary Islands, and the possessions on the African coast (north), 194,794. Population, 1900, 18,618,086; census of December 31, 1910, 19,588,688. Population per sq. mile, 101. In the provinces of Soria and Cuenca the number of inhabitants falls to 39 to the

sq. mile. Barcelona and Biscaya are the most densely populated, the highest figure being 435. Madrid had (census 1910), 597,573 inhabitants; Barcelona, 587,219; Valencia, 233,348; Seville, 155,366; Malaga, 136,192; Saragossa, 111,701; Bilbao, 93,536; Grenada, 77,425; Valladolid, 71,703; Cadiz, 67,174.

Marriages (1910 provisional), 139,176; births, 646,787; deaths, 456,127; emigrants, 191,761; immigrants, 99,839.

EDUCATION AND RELIGION. There are 34,954 schools, with about 2,000,000 pupils. Nominally compulsory free primary education is provided, but the percentage of illiteracy is large. Sum expended by the state on education and the fine arts in 1910, 52,351,347 pesetas.

The Roman Catholic is the national religion, other sects being allowed only a limited private observance of their creeds. By the concordat of May 6, 1851, the state is obliged to support the clergy and maintain the church buildings, etc., expending for this purpose some 41,000,000 pesetas annually. The church has, however, never adhered to the provision of this concordat forbidding the establishment of more than three religious orders; and numerous wealthy and powerful orders have become established, many of which are engaged in educational and industrial occupations. The state has made some effort to diminish the burden of maintenance and reduce the number of orders, but thus far without marked success. The total number of monks is about 12,800, in 794 houses; of nuns, 43,280, in 3007 houses.

PRODUCTION. The soil is notably rich, and the official agronomic service established in 1899 has greatly stimulated cultivation. Over 7,400,000 acres have been added to the cultivated area during the past decade. The wine output is about one-seventh of the world's supply; Spain is the first of the olive-growing countries in point of production. About 75 per cent. of the total cultivated area is under cereals. Area and yield of principal crops for two years (1911 preliminary), with yield per hectare in 1910, are given below:

	Hectares		Quintals		Qs. per ha.
	1910	1911	1910	1911	
Wheat	3,809,464	3,927,892	37,407,517	40,414,186	9.8
Rye	821,418	804,299	7,009,811	7,340,311	8.5
Barley	1,348,912	1,194,000	16,614,343	18,896,974	12.3
Oats	508,232	513,305	4,212,031	4,914,592	8.3
Corn	453,924	463,402	6,951,323	7,297,780	15.3
Rice	37,563	37,678	2,111,180	642,408	56.2
Vines*	1,292,940	1,289,000	11,283,433	14,704,000	8.7

* Yield in hectoliters (must).

Area under olives in 1910, 1,396,096 hectares, yielding 6,133,991 quintals of olives, and 1,017,143 of oil. Other important crops are esparto, flax, hemp, pulse, nuts, and fruits. Sericulture is carried on. Livestock (1909): 495,000 horses; 1,699,000 mules and asses, 2,317,000 cattle, 15,471,000 sheep, 3,285,000 goats, 2,296,000 swine.

Employed in the mines (1908) were 114,039 men, 1832 women, and 21,712 children. Total value of mining output, 202,326,794 pesetas. Output and value of principal minerals, in thousands of metric tons and thousands of pesetas (1908), are given at top of page 654.

	1000 t.	1000 p.		1000 t.	1000 p.
Coal	3,698	47,131	Ir. pyrites..	263	1,196
Iron	3,272	42,260	Silver*	441	324
Copper	2,986	38,512	Manganese ..	18	183
Arg. lead..	155	32,701	Sulphur ...	24	138
Lead	127	18,636	Phosphorite ..	4	131
Zinc	156	7,159	Asphalt ...	12	124
Mercury ..	42	5,840	Arsenict ...	6	115
Salt	837	5,245	Wolfram ...	††	109
Anthracite ..	188	3,083	Tin	‡	106
Lignite	233	2,761	Antimony ..	‡	18

* In thousands of kilograms. † Pyrites. †† 226 m. tons. ‡ 438 m. t. § 124 m. t.

The iron-ore industry, which is important, is reported in a critical condition, due to labor difficulties, inadequate and costly transportation facilities, and insufficiency of means of exploitation.

The cotton industry employs about 68,300 looms, with 2,614,500 spindles; the woolen, 8800, with 662,000. There are 144 paper mills and 34 glass factories. About 30,000 tons of corks are manufactured annually.

The fisheries employ about 14,000 boats and 71,500 men. The annual catch (mostly sardines, tunny-fish, and cod) is valued at about 38,000,000 pesetas.

COMMERCE. The special trade is shown for three years in pesetas:

	1908	1909	1910
Imports	981,625,369	956,976,672	1,000,036,564
Exports	896,342,677	925,930,062	970,519,355

Special trade by great classes in thousands of pesetas:

	Imports		Exports	
	1909	1910	1909	1910
Live animals	32,205	28,714	23,734	25,163
Raw materials ..	447,036	504,137	340,066	330,213
Manufactures ..	315,405	284,316	227,560	230,160
Foodstuffs	156,570	178,179	318,239	370,302
Total mdse.....	951,216	995,346	910,599	955,838
Coin and bullion	5,760	4,691	15,331	14,680
Total	956,976	1,000,037	925,930	970,519

Details of the 1910 trade (merchandise) follow, in thousands of pesetas:

	Imps.	Exps.
Foodstuffs, beverages, etc.....	178,179	370,302
Drugs and chemical products.....	135,899	36,567
Cotton and cotton manufactures.....	129,343	52,379
Machinery, etc.....	128,485	4,265
Minerals and ceramics.....	110,192	170,236
Animals and animal products.....	75,717	57,155
Metals and metal manufactures.....	58,268	148,417
Timber, wooden goods, etc.....	57,227	65,459
Vegetable fibre other than cotton.....	22,065	3,471
Silk and silk manufactures.....	19,949	6,349
Wool and woolen goods.....	19,341	18,450
Paper and paper manufactures.....	15,008	12,996
Various	20,742	9,793
Special imports	24,201	.....
Packing	3,730	.....
Total merchandise	995,346	955,839

Total trade by countries, in millions of pesetas, is shown at top of next column:

	Imps.	Exps.		Imps.	Exps.
Gr. Brit.....	203	261	Norway	16	2
France	133	188	Neth'lands ..	14	55
Germany ...	115	55	Brazil	11	2
U. S.	110	66	Sweden	11	2
Brit. Ind. ...	66	1	Cuba	11	59
Russia	44	7	Colonies	9	16
Argentina ..	41	63	Egypt	8	..
Portugal	34	40	Mexico	6	12
Belgium	34	32	Uruguay	5	11
Switz.	18	7	Other	76	51
Philippines ..	18	8			
Italy	16	31	Total	1,000	970

Vessels entered (1910), 21,645, of 21,488,654 tons (11,532, of 7,976,044 Spanish); cleared, 18,341, of 20,122,319 (9057, of 7,512,463 Spanish). Coasting: 57,838 vessels, of 15,580,114 tons, entered; 62,736, of 16,100,210, cleared. Merchant marine, January 1 1911, 577 steamers, of 744,517 tons net, and 302 sailing vessels, of 44,940.

COMMUNICATIONS. Railways in operation January 1, 1911, 14,675 kilometers; telegraph lines, 37,013 kilometers; wires, 84,766 kilometers; number of offices, 1741; post offices, 5742. Post office receipts, 31,869,537 pesetas; expenditure, 12,869,793; telegraphs, 11,000,644, and 10,694,009.

The French section of the trans-Pyrenees railway is nearly completed; but there is no immediate prospect that the Spanish section will make great headway. The project comprehends a tunnel through the mountains.

FINANCE. The monetary unit is the peseta, worth 19.3 cents. The revenue and expenditure for three years are given in pesetas:

	1908	1909	1910
Rev.	1,072,126,621	1,065,704,407	1,071,240,342
Exp.	1,025,888,290	1,100,935,981	1,028,214,361

a Inclusive of 53,799,594 pesetas for military operations at Melilla.

The budget for 1911 is detailed as follows, in thousands of pesetas:

Revenue		Expenditure	
Direct taxes...	476,271	Debt	409,398
Customs	157,600	War	188,357
Sugar	40,000	Agriculture* ..	103,341
Alcohol	15,000	Interior	79,302
Salt	58,000	Pensions	75,018
Transport ...	27,200	Instruction	58,325
Stamps	87,500	Worship	41,256
Other	10,100	Tax Dept.....	38,413
Tobacco	160,000	Marine	68,479
Matches	11,000	Finance	18,581
Lottery	36,000	Justice	20,093
Explosives ...	3,700	Civil list	8,900
Other	2,200	Foreign Affairs.	6,582
Domains	22,813	Leg. body.....	2,468
Treasury	25,463	Judiciary	1,030
		Colonies	1,900
		Council	689
Total	1,132,847	Total	1,122,632

* Agriculture, Industry, Commerce, and Public Works.

The budget estimates for 1912 are: Revenue, 1,132,847,211 pesetas; expenditure, 1,131,435,447 pesetas. The total public debt stood, January 1, 1911, at 9,431,104,065 pesetas.

ARMY. The new army law of June 29, 1911, established compulsory personal military service for all Spaniards. Young men declared fit for military service and comprising the annual contingent are divided by law into two groups, the first being incorporated into the regular es-

establishment, and the second receiving partial instruction in varying amounts under specified conditions. Voluntary enlistments are authorized between the ages of 18 and 21, and re-enlistments up to 30 years of age. The duration of military service is fixed at 18 years, divided into groups as follows: 1. Enrolled for an indefinite period of time. 2. First connection with the active service; three years. 3. Second connection with the active service; five years. 4. Six years in the reserve. 5. The remainder of the 18 years in territorial service.

The Spanish army is organized on the basis of a law adopted in 1907, which provides for an effective strength of 80,000 men, but allows the minister to increase this number at certain times during the year, if at others he makes a corresponding reduction so as to compensate for the outlay required. In 1911 the effective strength was 115,432, but the minister was authorized to increase this amount if he deemed it necessary. By a royal decree of September 1, 1911, the minister of war fixed the number of young men called to the colors in 1911-12 as 64,000, in addition to 118,418 who had been accepted for the service. There are eight territorial districts, each under a captain-general, with headquarters as follows: Madrid, Seville, Valencia, Barcelona, Saragossa, Burgos, Valladolid, and Corunna.

NAVY. The effective of the navy consisted in 1911 of 1 second-class battleship of 9900 tons; 1 armored cruiser of 10,000 tons; 2 armored cruisers of 7000 tons each, one cruiser of 9240 tons, one of 6000 tons, two coast-defense vessels of 7300 tons each, 2 cruisers of about 2000 tons each, 4 torpedo-boat destroyers, 6 torpedo gunboats, 8 torpedo boats. There are three training ships, a royal yacht, and some small craft.

Building are three battleships (the *España*, laid down December 6, 1909, launched in February, 1912; the *Alfonso XIII.*, laid down February 23, 1910; and a third, October 2, 1911), each with a displacement of 15,460 tons; four gunboats (ordered), of 800 tons; three destroyers of 370; and 24 torpedo boats, for coastal service, of 180 tons, with 26 knots speed. Personnel, 16,700 of all ranks, and 9000 marines. The appropriation for the ministry of marine in 1911 (budget) was 68,470,488 pesetas.

GOVERNMENT. The executive authority is vested in a king (1911, Alfonso XIII.), acting through a responsible council of ministers. The Cortes is the legislative body, composed of a senate of 360 members and a congress of deputies (404). The ministry (constituted February 9, 1910) was reconstructed as follows: Premier, José Canalejas; Interior, Ruiz Valarino; Foreign Affairs, García Prieto; Justice, Antonio Barroso; War, Lieut.-Gen., A. Luque; Marine, J. Pidal; Finance, T. Rodríguez; Instruction, A. Gimeno; Agriculture, etc., Rafael Gasset.

HISTORY

SPAIN AND THE VATICAN. The programme of the Canalejas ministry, presented in January, included the following features: The introduction of the Associations bill; a provision for compulsory military service; educational reform; restriction of immigration; the building of 20,000 miles of railway; and plans for irrigation and for colonization of the dry lands of Aragon and Catalonia. The chief issue be-

fore the Cortes during the spring session was the religious question. By the so-called Cadenas or "padlock" bill passed on December 23, 1910, the first step had been taken toward definite regulation of the status of religious associations. This forbade the entry of any new religious congregation into Spain for two years, or until the Concordat of 1851 was revised. After this the government devoted itself to securing the passage of an Associations law conceived in the spirit of the French law of 1901 and of the Canalejas and Dávila proposals of 1902 and 1904 respectively. This authorized religious associations without admitting the validity of perpetual vows and it recognized certain property rights to such authorized congregations, but it prohibited the holding of real property in excess of what was absolutely necessary for the use of the association. This and other safeguards were imposed for the purpose of guarding against the danger of mortmain. All congregations were made liable to regular taxation. Foreigners were forbidden to form religious associations until they had become naturalized. The Canalejas government resumed negotiations with the Vatican, which had been interrupted by the recall of Señor de Ojeda, and conferences took place in February. On March 2 the government received a note from the Vatican reviewing the situation and setting forth the attitude of the Holy See. It pronounced the question essentially ecclesiastical and determinable by the provisions of the Concordat, which, it declared, was the law of the Spanish state and which provided that if any difficulty arose the Pope and the King of Spain should discuss the subject with a view to a friendly settlement. The Vatican consented to reopen the negotiations on the following conditions: (1) "That the new *pourparlers* concerning the religious orders and congregations take as their starting point the provisions of the Concordat and the principles of the canon law, and that no change be made in the present legal status of the orders and congregations without previous agreement with the Holy See; (2) That, as a logical consequence, the negotiations should deal with that part of the proposed law which related to the religious congregations; (3) That while the negotiations were pending the Spanish government should refrain from taking a course that anticipated the result of the negotiations themselves." After a cabinet council, Señor Canalejas replied to this in a note affirming the supremacy of the civil power and the government's determination to present the bill to the Cortes without binding itself to enter into any preliminary agreement with the Vatican. A number of deputies interpellated the government as to its course in this matter, and there were some signs of dissension within the ministry itself, but on the whole, public excitement over the question had subsided. The Associations bill was prepared without consulting with the Vatican and was submitted to the Cortes on May 8.

THE REVIVAL OF THE FERRER AFFAIR. A ministerial crisis occurred at the beginning of April in consequence of the opposition to the government's stand on the question of revising the Ferrer trial. Republicans and Socialists had joined in an attempt to secure revision. Their spokesmen in the Cortes argued that there had been many irregularities and illegalities in the trial and condemnation of Professor

Ferrer. Their arguments turned mainly on a question of fact. They held that Professor Ferrer had not been seen in Barcelona during the rebellion except on the testimony of two witnesses, both of whom were suspects. The premier contended that there was no constitutional warrant for turning the Cortes into a final court of appeal for the revision of the Ferrer procedure and that the government had no right to pronounce upon the sentence. He defended the court and the military code and declared the discussion futile. The debate, however, brought out divergent views among the ministers and the supporters of the government. The Conservatives blamed the premier for not defending the army vigorously enough, and the Liberals, on the other hand, blamed him for not asserting with greater energy the supremacy of the civil power. Finding his own cabinet hopelessly divided on the subject, Señor Canalejas resigned on April 1, and was immediately charged with the formation of a new ministry. The debate on the Ferrer affair was resumed, but the Opposition, finding that the government still stood firmly against revision, turned their efforts toward securing the reform of the military code which the government had held out as a possibility and which was believed to form a part of its intended legislative programme. The attempt of the Republicans, however, to force the hands of the government in the matter was voted down by 179 against 23 (April 8).

THE MOROCCAN POLICY. For an account of the Spanish expedition to Alcazar and the military situation at Melilla, see MOROCCO, paragraphs on *History*. There had long been a sharp division of public opinion on the subject of the Moroccan question, one element regarding with envy and impatience the part played by France in that country, which they regarded as the natural field for Spanish conquest and expansion, and another element firmly opposing every form of military adventure as diverting the national resources from the more important tasks of democratic progress and social improvement. In response to a question raised as to the government's policy after the expedition to Fez, Señor Canalejas declared that the government had replied to France that Spain would do honor to her obligations; that it was to be feared that the serious affair at Fez would affect other parts of the empire, and that, therefore, it was the duty of Spain to take precautions against any disturbances in the vicinity of the Spanish strongholds. He asked the support of the country for the measures that the government might find it necessary to take to fulfill its obligations and declared that its course was by no means in the nature of a military adventure or in excess of the actual obligations of the country. He declared that the national honor was involved. Vague as these remarks were they had the effect of rallying the various factions to the support of the ministry. Only the Socialist deputy, Iglesias, expressed unyielding opposition. Here and there a voice was raised throughout the country against any intervention on the part of Spain in Morocco, but the main currents of public opinion seemed to favor vigorous action. Later, however, Socialists and Republicans entered into an alliance against the government's Moroccan programme and at a meeting at Barcelona in July took the government to task and declared themselves opposed to all military

adventures. Anti-militarism was preached by the visiting delegates of the French General Confederation of Labor at Madrid, and the Spanish Socialists echoed their sentiments. Another Republican and Socialist meeting was held at Santander in August under the auspices of the Social Republican Union. Some 7000 persons were present and the monarchy was violently attacked. Agitation against the government broke out in many parts of the country, and at Barcelona there was talk of a general strike. The Liberals and Conservatives, however, defended the course of the government, both in sending the gunboat to Larache and in sending the minister of war (General Luque) to the Rif country. Much alarm was caused by a sudden mutiny in the navy as showing that the revolutionary spirit had penetrated to the service. Thirty marines on board the *Numancia* attempted to seize the vessel with a view to appearing suddenly before Valencia or Barcelona and stirring up a revolution for a republic. They seemed to have been influenced by the example of the Brazilian mutineers and of the Portuguese navy. They were soon overpowered, however; their ringleader was executed and six of his comrades were sentenced to forced labor.

STRIKES AND RIOT. Toward the end of August a strike of dockers occurred at Bilbao and was followed by strikes of the men on the street railways, of miners, and of house painters. The houses of business were closed and there were conflicts with the troops. Attempts at conciliation failed owing to the refusal of the employers to make concessions in spite of the premier's request that they should do so. Plans were now made for a general strike and it soon spread to Santander, Huelva, the Asturias, Gijon, Oviedo, and other cities. It assumed revolutionary proportions and led to frequent conflicts with the troops, resulting in bloodshed. The government took prompt measures, declaring the movement revolutionary and the outcome of anarchistic plots. Martial law was proclaimed at Bilbao and the city was kept under strict military repression. Nevertheless the delegates of the strikers voted a general strike by a great majority. The railways and street car lines were stopped and Bilbao became virtually a closed port. Factories, shops, and mines stopped work. A further attempt at conciliation was made, but the employers again refused to yield. Similar conditions prevailed throughout Catalonia and there was danger that the movement would spread throughout the entire country. In Bilbao and Santander there was suffering from lack of provisions, the strikers having damaged the railways and prevented the carrying of supplies. A general strike was declared in Saragossa, San Sebastián, Valencia, Seville, and Corunna. In two of the towns a revolutionary government, modeled on the Paris commune, was declared. On September 19 the government issued a decree suspending the constitutional guarantees throughout Spain. The situation immediately improved, and on September 21 the press announced that work had been resumed at Bilbao, peace restored at Valencia, and the strike at Barcelona checked. On September 22 the premier said that the strike everywhere had ended. Many arrests were made at Bilbao and the prisons were crowded. Two Republican journals were suspended, but

the others remained under censorship. The constitutional guarantees were not restored until October 22.

Premier Canalejas attributed the movement to plots of the Radicals, Socialists, and anarchists, and pointed to the existence of a committee of Spanish and foreign anarchists and trade unions at Barcelona, with a programme involving the use of dynamite and the intimidation of the country. Their agents, it was said, had been dispatched throughout the entire country to incite rioters, and it was charged that at many points, had raised the cry of "Long live the Republic." The majority of this committee were arrested, the others fled. But the Radical leader, Lerroux (?) denied that the strikes had any political character or that the Radicals had any concern in them. He said it was too soon for a Republican attempt since the Republican forces were too much divided and lacked a chief, although he believed Spain was really Republican, and declared that under favorable conditions his party would aid in a movement to change the form of government. The Socialist leader Iglesias also protested that his party had no concern in the strikes. The government at the same time that it issued its decree suspending the constitutional guarantees announced definitely that it had evidence of this political conspiracy in Barcelona and Valencia, and that it knew all the details, including the sources of the funds that supported the movement and the persons to whom they were remitted.

ELECTIONS. The provincial elections on March 12 showed the anti-monarchical parties to be increasing in numbers in spite of the divisions in their ranks. Forty Republicans and four Socialists were returned, but compared with the strength of the great monarchist groups, the Liberals with 253 and the Conservatives with 140, they were still in a hopeless minority. The municipal elections, however, held on November 12, had opposite results. Surprise was caused shortly before the elections (October 23) by the declaration of the Radical leader, Lerroux, that the government's course in Morocco had been necessary for the fulfillment of its obligations and for the honor of Spain. He blamed the Conservative Maura government for the state of affairs and declared that the present government could not have acted differently. He declared that his party repudiated the Republicans and the Socialists when they attacked the bourgeoisie and the army. He declared himself a Republican and he designated Barcelona as the future capital of the Republic. He said he would unalterably oppose the Conservatives and the Maura government if they returned to power. In contrast to the divisions among the anti-constitutional parties, there was a monarchist bloc comprising Liberals, Conservatives, Ultramontanes, and Carlists. As to the Socialist Republican Union, although it was bitter in its opposition, its power was diminished as a result of the strikes, for a good many of its members were behind bars for the part they had taken in them. On the whole, the elections showed a great gain for the monarchists. Out of 49 large places only 3 chose Republican majorities. The Republicans lost three seats at Madrid, giving the monarchists the majority of 28 to 22. They were defeated also at Valencia. In other important cities also the monarchists were successful.

THE CULLERA MURDER. In September, during the general strike, rioters in Cullera in the province of Valencia murdered a magistrate and wounded several court officers. Seven of the rioters were arrested and first tried by a military court, which sentenced six of them to death. After this the case went to the Supreme Council of War and Marine, which condemned all seven. The Radicals bestirred themselves on behalf of the condemned men and succeeded in arousing popular sympathy for them. Many petitions favoring reprieve were presented and the prevailing public opinion was so clearly in favor of mercy that the premier urged the king to reprieve six of the prisoners, but to let the sentence of death stand against one of them named Chuqueta. There was a strong popular feeling against the execution of Chuqueta and the Radicals of Barcelona became especially pressing. The movement gathered force and towards the close of the year there were signs that the government, recalling the lesson of the Ferrer affair, was weakening.

SPAULDING, ALBERT. See MUSIC.

SPENCER, EDGAR A. An American jurist, died May 5, 1911. He was born at Cherry Valley, N. Y., in 1847, and was educated at the Cherry Valley Academy and Cooperstown Seminary. He studied law and was admitted to the bar in 1875. He practiced at Gloversville and was city attorney from 1879 to 1882. He was a member of the New York constitutional convention in 1895. In 1901 he was elected a Supreme Court justice for the term ending 1915.

SPERANZA, CARLO LEONARDO. An Italian educator, died June 17, 1911. He was born at Padua, Italy, in 1842, and in his early life spent some time in the army. He studied at the University of Padua and obtained his licentiate in 1861. Five years later he received the degree of doctor of jurisprudence. About 1870 he removed to America and for three years taught Italian in Yale University. After this he devoted himself to private teaching for several years and then became professor of Italian at Columbia University. In 1891 he was made instructor in Italian and Spanish at that institution and in 1893 instructor in Romance languages and literature. In 1902 he was made full professor of Italian. He specialized in the study of Dante and was an occasional contributor to magazines. In 1897 he was made a chevalier of the Crown of Italy.

SPERRY, CHARLES STILLMAN. A rear-admiral, retired, of the United States navy, died February 1, 1911. He was born at Brooklyn in 1847. During his boyhood his family removed to Waterbury, Conn., and he received his early education in the public schools of that town. He graduated from the United States Naval Academy in 1866. After rising through the various grades he was made commander in 1894. In 1891 he took part in the cruise of the White Squadron which made a visit to European waters. During the Spanish-American War he was, greatly to his regret, detailed as ordnance officer in the Brooklyn Naval Yard. Immediately after the war, however, he was placed in command of the cruiser *Yorktown* at Manila. When the revolt of Aguinaldo broke out in 1899 he was ordered to take this vessel down the east coast of Luzon and cut off Aguinaldo's retreat with a landing party in the rear of his army. He executed this commission with great

efficiency. In the course of the land manoeuvres half of the *Yorktown's* men were cut off and captured by the insurgents. The remainder pursued the insurgents the full length of the island of Luzon before they recaptured the American prisoners. Admiral Sperry was afterwards placed in command of the *New Orleans* in Asiatic waters. In 1903 he was appointed president of the Naval War College at Newport. In 1906 he was detached for special duty in the State Department and was one of the American representatives at the second Hague conference, 1907. He did much in formulating the Declaration of London (1909), setting forth the principles of maritime law to be applied by the prize court at The Hague. In the cruise of the sixteen battleships around the world in 1908, Admiral Sperry commanded the second squadron of the fleet until the time of his arrival in San Francisco, when on the retirement of Admiral Evans he was placed in command of the entire fleet. He was severely criticised during the visit of the fleet at Manila for refusing to allow the men of the fleet shore leave, thus throwing into confusion the elaborate scheme for their welcoming. He said that he had acted thus because of the prevalence of cholera in Manila. In September, 1909, he reached the age limit and was retired. He was offered the presidency of the Naval War College but declined, and after a brief period of subordinate duty at the college he gave up naval affairs altogether.

SPIELHAGEN, FRIEDRICH. A German novelist, died February 24, 1911. He was born at Madgeburg in 1829 and was educated at the universities of Berlin, Bonn, and Greifswald. He began his active life as a teacher at Leipzig and in 1859 became editor of the *Zeitung für Norddeutschland* in Hanover. Thence he moved in 1862 to Berlin and edited from 1878 to 1884 Westermann's *Illustrierte Monatshefte*. His first novel, published in 1860, was entitled *Problematische Naturen*. For a time he dealt with social problems arising from the conflict between the nobility and the intelligence of the nation. He treated the subject with an aggressive optimism which won a popularity that he afterwards maintained by sensational novels of a lower type. He translated into German selections from several well-known American writers, among them George William Curtis and Emerson. His collected novels appeared in twenty-two volumes in 1895.

SPINAL PARALYSIS, INFANTILE. See INFANTILE SPINAL PARALYSIS.

SPIRITISM. See PSYCHICAL RESEARCH.

SPIRITS, DISTILLED. See LIQUORS.

SPIRITUALISM. See PSYCHICAL RESEARCH.

SPOKANE (WASH.). See MUNICIPAL GOVERNMENT.

SPONGE, ARTIFICIAL. See CHEMISTRY, INDUSTRIAL.

SPRAYING. See HORTICULTURE.

SQUIRES, HERBERT GOLDSMITH. An American diplomat, died October 20, 1911. He was born in Madoc, Canada, in 1859, and was educated at the Minnesota Military Academy and the United States Artillery School. He was appointed second lieutenant in the First United States Infantry in 1877 and in 1880 was transferred to the Seventh Cavalry. From 1885 to 1890 he served as military instructor in St.

John's College and afterwards returned to the regular service. He resigned in 1891. In 1894 he was appointed second secretary to the United States embassy at Berlin. From this office he retired in 1897 and in the following year was appointed secretary of legation at Peking. During the siege of that city 1900-1901 he served as chief of staff to Sir Claude MacDonald. For this he received the thanks of the British government. He was appointed United States minister to Cuba in 1902, serving until 1905, when he resigned. In 1906 he was appointed minister to Panama, remaining until 1910, when he also resigned this post.

STANDARD OIL COMPANY. The most important decision of the United States Supreme Court under the Sherman anti-trust law of 1890 was handed down May 15, 1911. In November, 1909, the Standard Oil Company of New Jersey, seven individual defendants and thirty-six subsidiary companies, had been declared a combination in restraint of trade and therefore illegal under the Sherman act. This decision resulted from a suit which had been begun in November, 1906, in the United States Circuit Court in St. Louis. This suit for the dissolution of the Standard Oil combination followed an elaborate and painstaking investigation of the entire history of this company by the bureau of corporations. An appeal was taken from the above decision to the Supreme Court in December, 1909, the case being argued in March, 1910. The death of Justice Brewer in that month, and subsequent changes in the membership of the court, made it advisable to reargue the case. This was done in January, 1911. In addition to oral arguments the court record included 23 volumes of printed matter, aggregating about 12,000 pages. The decision of May 15, however, covered only 28 pages, to which the separate opinion of Justice Harlan added 13 pages.

The main contention of the attorneys for the defense was that the Standard Oil Company was not a combination, but the result of the natural evolution of an expanding industry. They contended that the subsidiary companies were not at one time rival companies, but were organized by the Standard Oil Company to take care of one or another branch of its continually expanding operations. They also argued that since the Standard Oil Company was not a public service corporation but a private undertaking, it could use all the shifts and devices of traders.

The government, on the other hand, endeavored to show from the detailed history of the company that it had manifested an obvious intent to restrain competition and to secure a monopoly of the petroleum business. Evidences of this intent were found in unfair methods, price discriminations in local competition, espionage of rivals, railway rebating and other control of transportation, the formation of independent concerns, and other devices. By these unfair means, the government contended, a condition of actual monopoly in that trade was established and maintained.

The opinion of the court, in which eight members concurred, was written by Chief Justice White. He reviewed the history of the Standard Oil combination, and then set forth an interpretation of the first two sections of the anti-trust law. The first section declares "every contract or combination in the form of trust

or otherwise, or conspiracy in restraint of commerce among the several States or with foreign countries, is hereby declared to be illegal." The second section says: "Every person who shall monopolize or attempt to monopolize, or combine or conspire with any other person or persons to monopolize, any part of the trade or commerce among the several States or with foreign nations shall be deemed guilty of a misdemeanor." Chief Justice White's opinion found "that the sole subject with which the first section deals is restriction of trade, as therein contemplated, and that the attempt to monopolize and monopolization is the subject with which the second section is concerned." He then declared that the terms "restraint of trade" and "monopolize" are intended to be mutually supplementary. Since applied to all kinds of contracts and combinations "it inevitably follows that the provision necessarily called for the exercise of judgment, which required that some standard should be resorted to for the purpose of determining whether the prohibitions contained in the statute had or had not in any given case been violated. Thus it follows that it was intended that the standard of reason, which had been applied to the common law, was intended to be the measure used." Having then developed the proposition that the second section was intended primarily to make the prohibition of the first section more complete and perfect, he said: "It becomes obvious that the criterion to be resorted to in any given case for the purpose of ascertaining whether violations of the section have been committed is the rule of reason guided by the established law and by the plain duty to enforce the prohibitions of the act."

The opinion then went on to support the Circuit Court in finding the Standard Oil combination guilty of violating both sections of the law. In the first place the unification of power and control over petroleum and its products, which inevitably resulted from the formation of the New Jersey corporation, "gives rise to the prima facie presumption of intent and purpose to maintain the dominance over the oil industry by new means of combination." In the second place, this presumption is made conclusive by considering, first, the conduct of the persons or corporations involved, and, secondly, by considering the proofs of the substance and manner of achievements under the agreement involved in the combination. The opinion pointed out, in reviewing the history of the combination, that "no disinterested mind can survey the period in question without being irresistibly driven to the conclusion that the very genius for commercial development and organization begot an intent and purpose to exclude others."

The Circuit Court had ordered the dissolution of the New Jersey corporation within 30 days. The Supreme Court approved the dissolution of the combination, but allowed a period of six months for the accomplishment of this end. The decree permitted the various subsidiary companies to make reasonable contracts and agreements with each other.

DISSOLUTION. The dissolution of the company became effective September 1. It should be understood that this did not involve the discontinuance of the Standard Oil Company of New Jersey; it merely dissolved the control which that company had theretofore main-

tained over the other oil companies carrying on various branches of the oil business in different parts of the country. The Standard Oil Company of New Jersey relinquished its ownership of the stocks of these other oil companies, their aggregate capitalization being \$145,000,000. These stocks were apportioned among the stockholders of the parent corporation. Thus, after the decree of the court was carried out, each stockholder in the Standard Oil Company of New Jersey had in his possession his shares of stock in that corporation and an equal proportion of the shares in each of the other companies.

It was generally doubted whether this plan would secure real competition between the various concerns. It was pointed out that about ten men owned a majority of the stock of the New Jersey company, and consequently of each of the other companies, and it was not to be expected, in view of this, that these companies would not work in harmony. This opinion was not changed by the retirement of the Rockefellers from active direction of the company, and the accession of J. D. Archbold to the presidency, for this involved no change in actual control or policy. See **TRUSTS** for discussion of the "rule of reason" laid down in the foregoing decision.

STANDARD TIME. At midnight, March 10, 1911, France officially adopted Greenwich time as a basis for all official reckoning throughout the republic and Algeria and in Whydah. This means a change of 9 minutes and 21 seconds from Paris time, which previously had been observed. Portugal and all the Portuguese colonies also adopted the Greenwich time, to take effect January 1, 1912, and Western European time, based on the meridian of Greenwich, was to be used in Portugal and the islands of Principe and São Thomé. Russia and Ireland were the only countries of importance outside of the universal time arrangement. See **ASTRONOMY**.

STANNARD, HENRIETTA ELIZA VAUGHAN (PALMER). An English novelist who wrote under the pseudonym John Strange Winter, died December 14, 1911. She was born at York, England, in 1856, and was educated at Bootham House, York. In 1874 she published her first story, which was printed in the *Yorkshire Chronicle*. This was followed by more than forty novels and novelettes before her reputation was attained by the publication of *Bootles' Baby*. At the suggestion of her publishers she adopted the pen name above-mentioned. Mrs. Stannard wrote so well of army life that she was called by Ruskin "the author to whom we owe the most finished and faithful rendering ever yet given of the character of the British soldier." Her knowledge of garrison life was derived from the fact that her father had been an artillery officer at York where she had ample opportunity to observe the ways of military men. Next to *Bootles' Baby* the best known story is perhaps *The Truth Tellers*. Among others she wrote *A Born Soldier*, *Beautiful Jim*, *In Quarters*, *The Soul of the Bishop*, *Only Human*, *Jimmy*, *The Little Vanities of Mrs. Whittaker*, and *Garrison Gossip*. She was married in 1884 to Arthur Stannard. She was the first president of the Writers' Club of London and was for two years president of the Society of Women Journalists. She was also a fellow of the Royal Society of Literature.

STATE BANKS. The report of the controller of the currency for 1911 summarizes the condition of 12,864 State banks, having an aggregate capital of \$452,954,000, and aggregate resources of \$3,747,000,000. The principal item of resources was loans and discounts of \$2,439,000,000; the resources also included \$315,550,000 of bonds and other securities, and \$313,500,000 cash and exchanges for clearing houses. The individual deposits amounted to \$2,777,000,000. The number of depositors as reported by 10,555 banks was 2,738,000 savings depositors, and 4,494,000 other depositors. The savings deposits were mainly in banks of the middle Western States; one-fourth of all being credited to the banks of Michigan. The average rate of interest paid on the savings deposits in State banks ranged from 2.91 per cent. in the New England States to 4.15 per cent. in the Western States. The Middle Western States had State banks to the number of 4119; in the Southern States there were 3861; in the Western States 3471; in the Pacific States 930; in the Eastern States 434; in the New England States 20; and in the island possessions 29. Missouri alone reported 1079 State banks; Kansas 855; Minnesota 712; Nebraska 630; and Oklahoma 631. About one-third of the capital and more than one-third of the resources of these banks were held by those of the middle Western States. Those of the Southern States ranked second in the amount of capital and third in the amount of resources, being exceeded in this last named by the banks of the Eastern States. See **BANKS AND BANKING** for a discussion of the *Guarantee of Deposits*.

STATE FORESTRY. See **FORESTRY**.

STATEHOOD. See **MEXICO** and **ARIZONA**.

STATE INSURANCE. See **GREAT BRITAIN**, *History*.

STATE LIBRARIES, NATIONAL ASSOCIATION OF. See **LIBRARY PROGRESS**.

STATE SCHOOL SYSTEMS. See **EDUCATION**.

STATISTICAL ASSOCIATION, AMERICAN. The seventy-third annual meeting of this association was held at Washington, December 28-30, 1911. President Frederick L. Hoffman opened the first session, being followed by Mr. Roger W. Babson on "Forecasting Business Conditions by the Study of Statistics." He developed the possibilities of forecasting periods of prosperity and depression by means of statistical data and declared that the national government should assume the function of forecasting business movements just as it now forecasts weather conditions. Other speakers emphasized the difference between statistics and estimates and expressed doubt as to the practicability of applying estimates on such a comprehensive scale as that contemplated by Mr. Babson. Another session was devoted to the subject of immigration; nationalization of immigrants and the effect of immigration on wages and standards of living were discussed by statistical experts of the United States Immigration Commission. Other sessions were held in connection with the American Economic Association (q. v.) and the American Association for Labor Legislation (q. v.). Prof. Walter F. Wilcox of Cornell was chosen president for the year 1912.

STATUES. See **SCULPTURE**.

STEAM TURBINE. During 1911 there was put in service at the Waterside Station of the New York Edison Company a 20,000-

kilowatt vertical Curtis turbo-generator, which was the largest prime mover ever built. This installation was most successful, and similar units were being designed and built for the Waterside Station and for the new Northwest Station of the Commonwealth Edison Company of Chicago. Nor was this considered to mark the limit of capacity of the steam turbine, for turbo-generators rated at 25,000 kilowatts and even greater were thought to be possibilities of the near future. As contrasted with the vertical steam turbine used for the larger generators such as those just mentioned, there is the horizontal turbine, which has been preferred for machines under 10,000 kilowatt capacity. Nevertheless, builders of these horizontal machines express their ability to build such units up to any capacity. In addition to their use with alternate-current generators, turbines were employed with large direct-current generators where a lower speed or revolution is required by means of a successful high-power reduction gear which had been brought to a requisite degree of efficiency. Another tendency of the year was to use higher speeds with some of the larger steam turbines, some of which up to 10,000 kilowatt capacity were being provided at 1500 and 1800 revolutions per minute.

The use of large turbo-generators makes possible great economies, especially in a central station work, for both electric railway and power generation. It is possible to concentrate the steam units in a single station, and use rotary converters at sub-stations where formerly isolated engine plants were maintained. In certain plants where electricity and steam for heating both are produced, a recent development was the so-called "bleeder" type of turbine. In this system an automatic valve between the intermediate and low-pressure stages enables some steam to be diverted, or "bled" from the turbine, which can be used in the heating system or for various auxiliaries. In regard to the latter many small sized turbines, mostly of the small reentry type, were being established in sizes from one to 300 kilowatts, to operate exciters, centrifugal pumps, and other auxiliaries of the power plant. These small turbines were also being used for driving the generating units in isolated plants of limited capacity.

THE TESLA STEAM TURBINE. A new type of steam motor which promised extraordinary efficiency and economy was developed during 1911 by Nikola Tesla, the electrical engineer and inventor. It consists of a series of flat steel disks mounted on a shaft and rotating within a casing. These disks, which are made of thin plates of hardened and tempered steel, are mounted on the shaft with intervals between adjacent plates, so that the steam entering by an inlet nozzle at the top of the casing might pass along their surface to the center, where portions of the disk are cut away so that the steam may escape by a suitable outlet. With the disks at rest, the steam flows in rather a short curved path from the periphery to the central exhaust opening, but when they are in rotation the steam travels a spiral path which increases with the speed of revolution so that the particles of the fluid may complete a number of turns around the shaft before the exhaust is reached, while at

the same time there is a reduction in velocity and pressure of the steam. In other words, the action of the motor depends upon the attraction and adhesion of the steam to the surfaces of the disks, and its velocity on the resistance of the particles of the moving fluid to separation. In this way the energy of velocity of the steam is transmitted to the plates and the shaft. This is quite different from the use of the expansion force of the steam by its pressure on the piston of a steam engine, or the reaction or impact as in various forms of steam turbines. In the Tesla motor the changes in the velocity and direction of the movement of the steam are made as easy and gradual as possible, so that not only is theoretical efficiency gained, but the mechanical construction is greatly simplified. Mr. Tesla's experimental turbine developed 200 horsepower, with 125 pounds steam pressure and exhausting directly to the atmosphere, with a heat drop of only 130 British thermal units taking place within, an amount only about one-third that available in a modern steam plant where superheated steam and vacuum exhaust are available. Were this machine compounded with a low-pressure unit with three times as many disks, and connected to a condenser with 28½ to 29 inches of vacuum, some 600 horsepower could be secured. In addition to its economy, the Tesla turbine has an advantage not possessed by other motors of this class in that it is readily reversible without any loss of efficiency, a duplicate inlet nozzle being provided for this purpose.

STEEL. See IRON AND STEEL.

STEEL ASSOCIATION, INTERNATIONAL. See UNITED STATES STEEL CORPORATION.

STEEL, MANUFACTURE OF. See CHEMISTRY, INDUSTRIAL.

STEENSTRA, PETER HENRY. An American theologian, died April 26, 1911. He was born in Holland in 1833. Removing to the United States, he settled at St. Louis in early boyhood. He graduated in 1858 from Shurtleff College. The same year he entered the Baptist ministry, but changed in 1864 to that of the Protestant Episcopal church. From 1867 to 1907 he was professor of Old Testament literature and interpretation in the Episcopal Theological School at Cambridge. From 1907 to the time of his death he was professor emeritus. He was the author of *The Being of God as Unity and Trinity* (1891) and of chapters on the Earlier History of Israel and on Hebrew Literature in Vol. II. of Wright's *History of all Nations*.

STEFANSSON, V. See POLAR RESEARCH.

STEIN, M. A. See EXPLORATION.

STEPHENSON, ISAAC E. See WISCONSIN.

STERILIZATION AND SOILS. See SOILS.

STETSON, CHARLES WALTER. An American artist, died July 20, 1911. He was born at Tiverton Four Corners, R. I., in 1858. He was educated in the public schools of Providence and at once began painting. His first exhibitions were in Providence. He later exhibited pictures in Boston, Philadelphia, Chicago, and other cities of the United States. He exhibited at the Pan-American Exposition, in the New Gallery in London, and in Rome. He also executed a number of etchings, examples of which are in the Boston Museum. For many years he lived and painted in southern California. For sev-

eral years previous to his death he resided in Rome.

STILES, WILLIAM CURTISS. An American clergyman and teacher, died August 15, 1911. He was born at Stoneham, Me., in 1851 and studied at Tufts College. He graduated from Tufts Divinity School in 1876. He was ordained to the Universalist ministry in the same year, with a pastorate at Orleans, Mass. In 1880 he entered the Congregational ministry and was pastor at Brooklyn from 1880 to 1884; St. Louis, 1884 to 1886; Pittsfield, N. H., from 1887 to 1890; Jackson, Mich., from 1892 to 1896, and Stonington, Conn., from 1897 to 1901. From 1890 to 1893 he was on the editorial staff of the *Standard Dictionary* and was associate editor of the *Homiletic Review*. He was the author of the following stories: *Literary Dozen* (1893); *Matter of Business* (1898); *Excuse Me* (1898); *Double Jeopardy* (1899); *Out of Kishineff* (1903), and *The Upper Way* (1904). He was coeditor of *Modern Sermons by World Scholars* (1908). He contributed much to magazines, encyclopædias, and religious journals.

STIMSON, HENRY LEWIS. An American lawyer, appointed on May 12, 1911, secretary of war, succeeding Jacob M. Dickinson, who had resigned. He was born in New York City in 1867 and graduated from Yale College in 1888. After studying at the Harvard Law School, he was admitted to the bar in 1891. He became a member of the firm of Root & Clarke, of which Elihu Root was senior partner. On the withdrawal of Senator Root in 1897 he formed the partnership of Winthrop & Stimson, which was continued until 1901. From 1906 to 1909 he was United States attorney for the Southern District of New York. This appointment first brought him into public notice. The three years in which he held this office were notable for the number of conspicuous government prosecutions. These included the sugar trust frauds and the prosecution of several railroads for rebates given to this trust. As a result of these prosecutions over \$3,000,000 was returned to the government and nearly \$400,000 was collected in fines for rebating. It was under his administration also that E. H. Harriman was made to testify concerning his railroad operations and that Charles W. Morse was tried and convicted of misapplication of funds of the National Bank of North America. Shortly after the inauguration of President Taft, Mr. Stimson resigned. He continued the prosecution of the government fraud cases as special counsel. He was nominated by the Republicans for governor of the State in 1910. He was identified with the progressive element of the party and, although he made an active and aggressive campaign, was defeated by John A. Dix.

STOCK-RAISING AND MEAT PRODUCTION. The total number and value of livestock in the United States in 1911 was about the same as in 1910, when there was a small loss in total value over the previous year, but the preliminary statements of the Thirteenth Census show large increases since 1900, especially in horses, mules, dairy cows, and poultry. In 1900 cattle constituted 48 per cent. of the value of all livestock on farms, far in excess of any other class of animal; but in 1910 horses had taken first place. Cattle increased in value only 0.7 per cent. during the decade, whereas the value of horses increased 131.6 per cent. The increase in horses and

mules is largely in the mature class. There was also an increase in value per head.

CATTLE. The year's receipts at the livestock market in Chicago show that the year's cattle supply was the smallest, with the exception of 1909, since 1900. The calf receipts were the largest on record. The hog supply was the largest since 1908, and more sheep were marketed than ever before, both at Chicago and at all the other large markets, and the horse receipts were the largest within the last half decade. There was a grand total of 16,397,492 head of livestock of all classes received at the stock yards, which was nearly 2,000,000 greater than in 1910, and over 16,000 in excess of the arrivals for any previous year. Receipts of cattle decreased in all Western markets, except Sioux City, the Southwestern markets showing the greatest percentage of decrease.

Cattle values did not average so high as in 1910, though butcher cattle sold relatively high throughout the year, and high prices were obtained at the end of the year. For two years the United States has been importing more cattle than it has exported in a numerical sense, but aside from the number there have been large imports of cheap stock cattle from Mexico, so that the value of the export live cattle exceeded that of the imports. The export of packinghouse products reached \$150,000,000, a gain of \$21,000,000. The export of live animals was valued at \$19,000,000, a gain of \$2,000,000 over 1910. The exports of cattle, horses, mules, and sheep, dressed beef, and pork reached their highest figures in 1900 to 1904. The highest figure ever reached for swine was between 1870 to 1879; and for butter and cheese, 1880 to 1889. The exports of eggs and mutton are increasing at the present time. Beef production seems to be in a transitional stage. The free range of the West has been broken up, while in the East the dairy industry has supplanted the raising of beef. The liquidation resulting in making these changes is now about completed, and the future of the beef supply will be provided for on a different basis. At the present time it looks as if the beef industry will be in the hands of small holders, while skilled breeders will give their stock better winter care in the days of bonanza ranching. More range cattle were shipped to the Pacific coast than was ever known before. This was because of the increase in population, and higher prices were paid than were offered by Eastern buyers. More interest is taken in beef production in the Southern States, and the feeding experiments at the Alabama station in co-operation with the Department of Agriculture demonstrate that cattle can be profitably fed in Alabama in summer. The pork feeding investigations also show profitable results. In the future the South will afford a more favorable field for raising cattle, especially after the handicap of the cattle tick has been removed.

In a series of feeding experiments at the Nebraska station it has been demonstrated that a combination of corn and alfalfa is superior to the old method of fattening cattle for market, which consists of feeding heavily with grain and using little roughage. In a five-year trial of fattening cattle on blue grass pasture at the Missouri station better gains were made and a more uniform finish was obtained when corn was supplemented with other concentrated feeding stuffs than when fed alone. Several of the

experiment stations have also shown that the heavy feeding of silage can be followed with advantage in fattening cattle. In one case three pounds of gain per day was made with very little grain, and the beef produced was of excellent quality. The feeding of beet pulp, sugar-beet tops, and sugar syrup to cattle and sheep has become an important industry, when fed in connection with alfalfa and straw.

A factor in the export of meat at the close of the year was the announcement of the British war office that it would order no more beef from the Chicago packers until the criminal suit against them had terminated. During the year plans were adopted by the Texas Cattle Raisers' Association for the organization of selling agencies, with a paid-up capital of \$3,000,000, the particular object of which was to bring the producers and consumers closer together. The construction of independent packing houses or municipal abattoirs was also advocated at the Fort Worth meeting of the producers' and consumers' congress.

But with the increase in the price of feeding stuffs and the constantly increasing population it is evident that the production of meat in this country is falling off quite seriously in proportion to the population. Fewer sheep and cattle are being raised in proportion to the population than ever before.

An investigation of the cold-storage industry by the Department of Agriculture has shown that cold storage has a pronounced tendency toward a uniformity of prices in regard to butter, eggs, poultry, and fresh mutton, and a tendency away from uniformity in regard to fresh beef and fresh pork.

During the year a combination of American capitalists was formed to establish in Brazil the largest beef-producing market in the world. A syndicate has bought from the Brazilian government 1900 acres of land, on which cattle can graze throughout the year. It is the intention to export to Europe from the port of São Paulo, which will be the headquarters of the syndicate. The aim will be to produce chilled beef, as the prospect is that Great Britain and Germany would not make any great concession to Brazilian live beef even under the best possible management, as South American live beef has been barred from the European markets for ten years because of the prevalence of foot-and-mouth disease. The syndicate expects to run its own line of steamers with every facility for refrigeration, and hopes eventually to open the ports of England to live beef by introducing modern methods of production and shipment.

HORSE BREEDING. The year 1911 was a good one for the breeders of horses, especially for heavy draft horses, as the demand steadily kept ahead of the supply, and several horses weighing 1600 pounds have sold at from \$300 to \$425 per head on the Chicago market. A record-breaking price for a draft horse was obtained when the Clydesdale stallion, Baron O'Buchlyvie, was sold in England for \$47,500.

The supply of horses fit for the United States army remounts has become so limited that it has been necessary for the government to take steps for the encouragement of breeding army horses. There is a constantly growing demand for American-bred horses, and many attempts have been made to meet this in various ways. National and State aid has been given to its

coöperative breeding work at the experiment stations. Several States have passed so-called stallion laws, relating to registration and control of stallions used for public service in order to prevent fraud and to eliminate the unsound.

In accordance with arrangement with the Treasury Department, the Bureau of Animal Industry has completed the first year's inspection for the pure breeding of all animals imported for breeding purposes. During the year 3178 horses, 1770 cattle, 1620 sheep, 37 hogs, 504 dogs, and 27 cats were thus imported. The Pure-Bred Sire League, inaugurated by Dr. Alexander in Wisconsin, is growing, and a similar organization formed in Kansas through the efforts of the Kansas Agricultural College is called the Pure-Bred Sire Club.

MISCELLANEOUS. In the Southern States hog clubs have been formed among the boys as a sequence to the corn clubs, in order to interest them in the keeping of better stock and improving the methods of feeding. Nearly all of the leading record associations have taken out membership in and are coöperating with the National Society of Record Associations, formed at the beginning of the year.

The estimate of the value of poultry products in the United States in 1911 was \$750,000,000. There is, however, a great loss due to the poor handling of eggs and improper methods of dressing poultry for the market. These problems have been studied by the Department of Agriculture, and have resulted in improving the egg trade by recommending the "loss off" method for the "case count" system.

FOREIGN COUNTRIES. Argentina ranks third as a cattle-producing country, being out-ranked only by Russia and the United States, and is the leading country in beef exports. The last available figures for livestock in Argentina are the following: Cattle, 27,124,229; sheep, 67,363,952; horses, 7,537,675; mules, 465,054; asses, 285,113; goats, 3,946,750; pigs, 1,404,261.

In Canada during the year there was a decrease in the number of milch cows and sheep, but an increase in all other kinds of livestock. The livestock figures for Great Britain for the year are as follows: Horses, 1,627,393; cattle, 7,114,264; sheep, 26,494,992; pigs, 2,822,154; These figures show an increase in cattle and pigs, and a decrease in sheep. The number of cattle is the largest on record. It is estimated that in England more eggs are produced per annum, to the value of \$25,000,000, than were produced twelve or fifteen years ago, yet about \$35,000,000 worth of eggs and \$4,000,000 worth of poultry are imported. The supply coming from the different countries is in the following order: Russia, Denmark, Austria-Hungary, and France. Some are also imported from Italy, Belgium, Canada, and the Balkan States. In Ireland the value of exports of eggs and poultry has been steadily increasing for ten years, so that they are now third in importance as regards exports, being only exceeded in value by the exports of linen and cattle. This growth is largely due to the efforts of the department of agriculture.

An official inquiry was made into the high price of meat in Germany in 1910. Inquiries showed that the number of cattle, calves, and sheep was smaller in 1910 than in 1909, but greater than the averages for the preceding ten

years, as more pigs were marketed in 1910 than in any five of those years. It was concluded that the increase in price was due largely to the increase of consumption of meat per head of population. There were meat riots in Vienna in September, 1911, because of the high price of meat. The imports of fresh and frozen meat had been stopped for several years, and a cattle epidemic in the spring had reduced the domestic stock. Argentine meat was admitted during a part of the year, and the riot was caused when the socialists read that a shipload of several hundred tons which had arrived in August was forbidden by the Hungarian government to be landed.

Horse breeding is assuming enormous proportions in France and Belgium. In Belgium there were over 31,000 heavy horses exported during the last fiscal year. On the other hand, 23,000 light horses were imported, and 22,000 others imported for slaughtering. The livestock industry is growing rapidly in Siberia, especially the dairy industry. The herds of small, long-horned cattle are being replaced by Shorthorns, Jerseys, and other improved breeds. The coarse-wool black sheep are giving place to the Cotswold and Shropshires. The improved hogs are driving out the old-fashioned black hog. In the Philippine Islands the breeding of all classes of livestock has steadily increased since the American occupation, but there is a shortage due to increased demand. The number of livestock on the islands is now estimated as follows: Horses, 215,674; cattle, 242,398; carabaos, 713,121; hogs, 2,062,605; goats, 287,087; sheep, 88,760; chickens, 5,470,981; turkeys, 9201; ducks, 78,215; geese, 6202. Importations of European breeds of cattle and zebus have been made and are giving good results when crossed with native stock. But little attention has been given to the sheep industry.

Some of the principal books on livestock published during the year are the following:

M. W. Harper, *Manual of Farm Animals*, New York; F. B. Marshall, *Breeding Farm Animals*, Chicago; J. E. Halligan, *Elementary Treatise on Stock Feeds and Feeding*, London, England, and Easton, Pa.; C. Richardson, *The New Book of the Horse*, London, New York, and Toronto; C. S. Plumb, *A Partial List of Animal Husbandry Literature*, Columbus, Ohio; A. L. J. Gosset, *Shepherds of Great Britain*, London; and U. Telschow, *Grundrisse der neuzeitlichen Schafzucht*, Hanover, Germany.

STOCKS AND BONDS. See FINANCIAL REVIEW.

STODDER, LOUIS N. An American naval officer, died October 8, 1911. He was born in New York City in 1837 and was educated in the public schools of that city. He studied navigation and had some experience at sea. At the outbreak of the Civil War he volunteered for service. He was assigned to the *Monitor* at her launching as acting master and continued in that capacity until she foundered off Cape Hatteras while being towed southward for service. During the famous battle with the *Merri-mac* he was in charge of the turret of the *Monitor* and fought the turret guns throughout the engagement. After the close of the war he went into the revenue cutter service and was retired in 1902. He later became supervisor of anchorages at the port of New York.

STOLYPIN, PETER ARKADEVITCH. Prime minister of Russia, died from assassination at Kief, September 18, 1911. He was born in 1863 and was educated at the University of St. Petersburg, graduating in 1884. He was born of old Muscovite stock in a moderate position in life. He early demonstrated ability in politics and served in the ministries of the interior and agriculture. In 1889 he was made marshal of the Provincial nobility, in 1902 vice-governor of Grodno and in 1903 governor of Saratov. He first came into prominence while holding the latter post. In 1905 an attempt was made to kill him. Three shots were fired by an assassin but he was not hit. Speaking of his service at this spot he asserted that it had been his aim to cultivate a class of pleasant landowners and give them real weight in the local government of their communes. He was reproached for establishing a new university in the province and replied that it was only by introducing the higher education into the provinces that the work of developing law and order would be successfully advanced in Russia. In May, 1906, he was called by the czar to St. Petersburg and made minister of the interior in the Goremykin ministry. He remained but three months in this office, but during this time he was savagely assailed on the floor of the Duma as a tyrant and murderer and a monster of cruelty unparalleled in history. He came into office with the rising wave of revolutionary terrorism which deluged Russia with blood and filled it with ruin. He put this down with a strong hand and the police and soldiers were allowed to go as far as they wished in repressive measures in the disturbed districts. Where suspects were convicted of revolutionary or terrorist crimes wholesale executions were mercilessly carried out. The attacks of the Duma did not interfere with the czar's confidence in Stolypin and in July, 1906, he was made prime minister. Despite annual rumors of his impending downfall he weathered every political storm and remained at the time of his death more firmly intrenched in office than ever before. The first Duma with its large, popularly chosen and radical membership, having proved unmanageable, was dissolved on July 22, 1906. A second one was selected and met in March, 1907, but this in its character differed little from its predecessor. In June Stolypin accused most of the Socialist members of being parties to the revolutionary propaganda in the army and navy and demanded their immediate suspension. The Duma refused to act without an investigation and was thereupon dissolved by the czar. For the choice of the third Duma the premier prepared an electoral law which, while it still preserved the semblance of a general franchise, made it certain that the membership would be representative, in the main, of what may be called the conservative classes of the people. This body was chosen at the elections in September, 1907, and although it proved by no means so amenable to ministerial dictation as its projectors hoped, on the whole it worked well and no attempt has been made to dissolve it. In 1908 Stolypin's enemies rejoiced at what they declared his impending deposition from office. Again in 1909 he was said to be completely out of favor with the czar and on the point of retirement. Nothing happened, however, until March 19, 1911, when he handed in his resignation. This was the result of his attitude on the question of extending the

Zemstvo or local council system to the western provinces, which was one of the methods by which Stolypin hoped to develop the faculty of self-government in the people. The Duma had passed the bill without difficulty, but the Council of the Empire, made up largely of grand dukes, members of the nobility, and high officials, rejected it. The leaders of the council urged the czar to stand firm in its support. Contrary to their anticipations, however, the czar yielded to the demands of his premier in regard to the measure, and also granted his demand that Durnovo and Trepoff, the most aggressive members of the council, should be eliminated. Only on these conditions would Stolypin consent to remain in office. He suspended the sessions of Parliament, established his provincial council system by imperial decree, and then called the two parliamentary houses back to their duties.

Under Stolypin's rule the reign of terror of 1906 and 1908 was gradually put down. The country began to prosper materially, the army was reorganized, and the building of a new navy to take the place of the one destroyed by the war with Japan was begun. An annual surplus of many million roubles was developed in the imperial treasury. Shortly after Stolypin's appointment as premier, a second attempt was made on his life. This was on August 25, 1906, when a bomb was thrown into his house at Aptekarski Island, where a reception was in progress. Stolypin himself and two of his daughters were wounded and thirty persons were killed outright, including two of the four bomb-throwers, and several were wounded.

Stolypin was classed in politics as an Octobrist, but in reality was above party affiliation and used such combinations as he could effect to carry out his will. He has been described by one of his critics as "attempting the impossible feat of reconciling absolutism and constitutionalism." During various periods of his career he was hated by all parties, and was accused of nearly every crime except dishonesty. In the year or two preceding his death, however, he had begun to acquire admiration and respect if not affection not only in Russia but throughout Europe. He restored tranquillity and prosperity to the country after the exhaustion of foreign war and domestic disorder. He was a man of remarkable enlightenment and clearness of intellect. He saw the inevitable drift of the age toward the rule of the people and the overthrow of arbitrary government, and when he came into power he made his policy the guidance of this tendency. This resulted in the hatred of the people, because he retarded the development of the parliamentary system for Russia and put down popular violence and disorder with ruthless severity. At the same time the reactionary element in the empire were his deadly foes, because it was plain that under his leadership the parliamentary system would gain a position in the government from which it could never be thrown down and that the people of Russia were beginning a real practical education for self-government. For the political effects of Stolypin's death, see RUSSIA.

STORAGE BATTERIES. See ELECTRIC BATTERIES.

STORM KING TUNNEL. See AQUEDUCTS.
STRAITS SETTLEMENTS. A British crown colony, made up of the island of Singapore (206 sq. miles, 228,555 inhabitants in

1901), Penang (107 sq. miles, 128,830), Malacca (659 sq. miles, 95,487), Province Wellesley (288 and 115,284), the Dindings (260 and 4133), Labuan (31 and 8286), Christmas Island (56 and 12,000), Cocos Islands (9 and 700). Total area, 1646 sq. miles; total population (1901), 572,249; estimate of 1911, 650,000. Singapore, with 193,089 inhabitants in 1901, is the capital. Chinese immigrants entering Singapore in 1910, 216,321, against 64,569 in 1909; entering Penang, 59,414, an increase of 37 per cent. over 1909. The increase was due to poor harvests in southern China and the inducements held out to labor by proprietors of rubber estates. Cattle imported into Singapore in 1910, 23,621 (15,062 in 1909); swine, 87,895 (66,797). In 1910, 104,800 tons of copra were exported; 64,000 tons of sago, 62,000 of arecanuts, 61,300 of tin, 40,800 of tapicoca, 29,000 of gambier, 26,600 of rattans, 28,400 of pepper, 3600 of gutta percha, 25,300 of inferior gutta percha, 2700 of rubber, 6500 of hides. Total imports and exports (1909), 313,358,427 and 281,183,021 Straits-Settlements dollars respectively (1 S.S. dollar = 56.7758½ cents); intersettlement trade, 14,500,548 and 13,073,446. The trade of Singapore in 1909 showed imports amounting to £26,713,900; exports, £23,022,100 (including exports from Christmas Island £263,702); of Penang, £10,874,100 and £10,631,600; Malacca £507,000 and £544,000; Labuan, £155,200 and £131,700.

Articles of total trade, exclusive of intersettlement, in 1909 are given below:

Imports		Exports	
Rice	£4,328,760	Tin	£8,248,128
Cottons	1,446,926	Spices	1,358,529
Opium	1,025,209	Gums	2,397,634
Fish	1,125,278	Copra	1,161,872
Coal	756,844	Gambier	649,796
Tobacco	872,926	Rattans	456,723
Sugar	774,454	Hides	449,912
Machinery ...	624,837	Pineapples ...	250,944
Petroleum ...	352,188	Tapicoca	823,567

Entered at the ports of the colony in 1909, 9443 vessels, of 11,095,460 tons; native craft, 17,505, of 675,762. Cleared, 9446 vessels, of 11,096,894 tons; native craft, 17,512, of 671,439. Railways in operation, 567 miles. The estimated revenue (1909) was placed at £1,026,083 and the expenditure at £996,652. A governor (1911, Sir Arthur Henderson Young) administers the colony; the separate states have resident councillors—R. N. Bland for Penang, W. Evans for Malacca, M. S. H. McArthur for Labuan.

STRANSKY, JOSEF. See MUSIC.

STRATIGRAPHICAL CLASSIFICATION.

See GEOLOGY.

STRAUSS, RICHARD. See MUSIC.

STREET CLEANERS' STRIKE. See

STRIKES.

STREET TRADING BY CHILDREN.

See CHILD LABOR.

STRETTON, HESBA. An English novelist, died October 9, 1911. She was born in Shropshire in 1841, where her father was a bookseller. The name Hesba Stretton was a pseudonym, but was used also in private life, and there is a dispute as to her real name. She wrote for Charles Dickens from 1859 until his death. She afterwards produced many stories of a religious and philanthropic trend, which were translated into many foreign languages.

Among her published writings are *The Doctor's Dilemma*; *Hester Morley's Promise*; *Half Brothers*; *Jessica's First Prayer*; *The Soul of Honor*, and *The Highway of Sorrow*.

STRIKES. The year 1911 was not a year of extensive labor disturbance in the United States, differing materially in this respect from the preceding year. In European countries, however, there was a very unusual amount of labor unrest. This was less notable on the continent than in England, where the great international strike of the seamen centred. There was a great deal of disturbance in Spain and Portugal, attended with strikes and riots, but these were primarily political in character rather than industrial. The chief economic cause of strikes was probably the increased cost of living (see PRICES). It is a well-established economic principle that in times of rising prices wages increase less rapidly than the cost of commodities. Another undoubted cause is the increasing class consciousness of the working population, resulting in the growth of trade unionism and more extensive concerted action for the betterment of wages and other conditions of labor. See ARBITRATION AND CONCILIATION, INDUSTRIAL; and TRADE UNIONS.

INTERNATIONAL. The International Transport Workers' Federation has developed rapidly during the past seven years. It has extended its affiliations so as to include the principal countries of Europe and the United States. Its associated organizations are more or less important in 300 harbors in Europe and America; they include forty-four separate national unions with 600,000 or 700,000 members in eighteen different countries. It publishes the *Correspondence Bulletin* in five different languages. While not strongly inclined to fighting methods and favoring passive resistance and boycotts, it is not unwilling to resort to strikes to enforce its demands. It claims no authority to call strikes in any particular country, awaiting requests from some national organization. Conferences were held at Copenhagen in August and at Antwerp in November, 1910, and finally at Antwerp again in March, 1911.

At this last conference it was decided to appoint a defense committee to investigate the situation in England and if necessary to take steps preparatory to an international strike. Representatives were present from the United States, Germany, Sweden, Norway, Denmark, Holland, and Belgium. The German representatives declared that they could not be expected to adhere to the proposed strike because of recent increases in their wages. The French unions were not favorable because they had just completed several strikes at French ports and desired further to perfect their organizations. The English representatives declared that their demands were for a minimum monthly wage of £4 10s., uniform rates of pay for crews engaged in steamer service, abolition of medical examination, the recognition of the union, and a closed shop. The conference agreed that if further efforts at the betterment of conditions in English ports failed, an international strike, which had been threatened for several years, should be called. The strength of the seamen had been greatly increased by the organization of the International Seamen's and Firemen's Union, whereby the importation of strike breakers or "blacklegs" from the ports of one

country to those of another by shipowners was rendered difficult. Moreover, the organization of dockmen and cargo handlers under the International Transport Workers' Federation had greatly increased the amount of the trade union influence in principal ports.

The demands of the British seamen not being granted, the threatened international strike was declared on June 14. The ports affected included London, Liverpool, Manchester, and all other principal ports of Great Britain and the ports of Holland and Belgium. By June 20 ships were being detained in a great many different ports for lack of crews. The strike of the seamen was soon followed in Great Britain by strikes of transport workers, including dockmen, carters, cargomen, and stewards. More than 100,000 men were out. Although shipowners at various ports granted the demands for higher wages and secured seamen and other employees, the situation grew worse until the end of June, after which there was a more or less steady improvement. The usual wages of British seamen had been £4 per month. The shipowners generally granted increases of 10s., though in a few cases the increases were only 5s. The total number of seamen and firemen affected was about 150,000 and the total annual increase in wages was estimated at nearly £600,000. The strike of the dockers and carters, which was most serious in July and August and was limited in the main to English ports, was attended by considerable violence, rioting, and even loss of life at several ports, especially Liverpool, Manchester, and Glasgow. This strike, being accompanied by the English railway strike, brought many of the larger cities face to face with a possible shortage of food supplies. In London the stock of chilled and frozen meats was nearly exhausted and prices were doubled. There was also a scarcity of provisions and fruits and at the same time the fish porters threatened to strike. The Transport Workers' strikes were officially ended in August, and gradually simmered out, an advance in wages being secured in most cases. Final settlements were not reached in some cases, however, until the close of the year.

The disturbance at Amsterdam was greater than at any other port outside Great Britain. There was a great deal of rioting and a conspicuous loss of life, necessitating an extensive employment of military force. The seamen's strike at that port continued up to the first of August without any distinct gain by the strikers. At St. Petersburg some 12,000 laborers employed on timber and coal docks struck about August 1, for a 50 per cent. increase in pay. The employers announced their willingness to compromise and the men were forced to accept their offer because of lack of strike funds. Antwerp, Rotterdam, New York, and Boston also experienced disturbances. Everywhere the strikers were at least partially victorious. Moreover, the strength of union and mutual understanding among all branches of workers engaged in the international carrying trade was increased.

UNITED STATES. Chicago Garment Makers. This notable strike, involving 30,000 workers, began in October, 1910. The strike began with the cutters employed by the Hart, Schaffner Marx Co., there being a disagreement of a fraction of a cent in piece-wage rates. By common consent men and women speaking six languages

and employed in many shops stopped work on learning that the cutters were out. The grievances were small but numerous and had occasioned widespread dissatisfaction. There was almost no disorder and numerous attempts by outside parties were made to bring about a settlement. The principal employer was the company mentioned, which employed 10,000 workers. This company at the middle of January reached a basis for arbitration with its employees, who returned to work at once. This basis included the following points: Strikers should be taken back regardless of violence; there should be no discrimination against members of the United Garment-Workers of America in the reemployment of strikers; all striking employees were to be taken back within ten days; a board of arbitration of three was to be chosen at once to settle the points in dispute and to fix a method for the settlement of future grievances; the findings of the majority of this board were to be binding on both parties. The other 20,000 strikers were finally exhausted; they were literally starved into submission, giving up the fight on February 3. They decided to accept whatever terms the employers, who were organized in two associations, would give. Although undoubtedly forced by circumstances to this position the strikers had cause for suspecting the loyalty of some officers of the union. This suspicion also existed in the minds of a body of public-spirited citizens and other union labor leaders who had worked long and honestly to bring about an arbitration of differences and who were nearly successful, but who were not consulted when the strike was ended.

HARRIMAN LINES. That the tendency toward combination has affected the organization of trade unions is shown by the federation of shop crafts among railway workers. The main object of this federation is to improve the strength of the various unions. A number of important railroad managers have recognized the federation as a legitimate organization and carry on relations with employees through the representatives of the federation. In June such a federation was formed on the Harriman lines by a conference of union representatives at Salt Lake City. At about the same time similar federations were formed on the Illinois Central, the Rock Island, and the Frisco systems. The managers of the Rock Island shortly thereafter signed the federate agreement. The managers of the Harriman lines, however, refused. After several fruitless conferences, at which Mr. Kruttschnitt, vice-president of the Harriman lines, steadily maintained a position of opposition, a strike was declared on the Harriman lines and the Illinois Central on September 30. This was a determined struggle. On the one hand Mr. James W. Kline, president of the International Brotherhood of Blacksmiths and Helpers, declared: "If we win this strike all the railroads in the United States will submit to a federation." On the other hand Mr. Kruttschnitt said: "We might as well turn over our roads to the men as grant their demands." On the one hand the union leaders declared that the individual unions were too weak to contend on equal terms with the managers of the great railroads. On the other hand the railway managers looked upon the federation as a trust with inherent powers of extortion and intolerance. The demands of the federation included: The closed shop; the right of the

organization to designate the men to be laid off; the right to say whether any other employee shall be discharged or employed and the abandonment of the bonus system. Mr. Kruttschnitt issued a formal statement in which he laid stress on the good wages paid, the hospital, pension, and other benefits provided, and pointed out the evils of recognizing the federation in so far as this would interfere with the effective operation of the many parts and branches of a great railway system. President Kline replied that Mr. Kruttschnitt had overlooked "the damnable physical examinations, the personal-record system, and the rank discriminations practiced by the railroads." He held that the federation was needed for the protection of the men and would prove economical and convenient from the standpoint of railroad management, since one committee would replace several. The strike continued beyond the close of the year.

WESTMORELAND MINERS. The strike begun in the Irwin-Greensburg field in Westmoreland county, Pennsylvania, in March, 1910, continued until July 5, 1911. At its height some 17,000 miners were out; by November, 1910, two-thirds of these had gone elsewhere; the remainder kept up the fight. This was the longest considerable strike ever recorded in this country. The strikers were backed up by the United Mine Workers, while the mine owners and operators maintained an organized opposition. The cause of the strike was the effort to unionize the field. The conditions in the Irwin coal field are similar to those in the Pittsburgh field as regards quality of vein. The latter field, however, is unionized and wages and conditions are determined in part by the representatives of the men. They were 20 per cent. better than at Irwin. Thus skilled labor in the Pittsburgh field received \$2.70 to \$2.80 for an eight-hour day, while at Irwin it received \$2.40 to \$2.60 for a ten-hour day. Unskilled labor at Pittsburgh received \$2.49 for eight hours and at Irwin \$1.60 to \$2.00 for ten hours. The miners working by the ton claimed that they were being constantly exploited by fraudulent weight records. They had no representative as a check on the operators' weighmen. Moreover, the miners objected to the requirement that they remove all clay and slate and make roads in the mines out of their own time. They also objected to being forced to bear the increase in expense due to new kinds of powder and of safety lamp. Considerable irritation was due also to the fact that the operators were not only employers but also landlords and storekeepers. It was protested that the operators exploited them as miners and then took a scandalous advantage of them as renters and patrons of the company stores. A rental of \$168 per year was charged for houses that did not cost over \$500. The miners also asserted that undue pressure was brought to bear upon them at election time to force them to cast their ballots as directed by their employers. The strikers received about \$20.00 per week from the United Mine Workers, or a total of more than \$1,000,000, as strike benefit. The real cause of the cessation of the strike was the unwillingness of the International Executive Board of the United Mine Workers to continue a struggle which held so little promise of success. Had the coal market been brisk the operators could have been brought to terms, but with a slack

market their stubborn resistance finally won. The losses to the operators included \$500,000 for private police, loss due to decreased output, and to the introduction of a lower grade of workers. One of the remarkable features of this strike was the tenacity with which a heterogeneous mass of immigrants speaking several languages held together in a common cause under desperate circumstances.

NEW YORK STREET CLEANERS. The strike of about 1200 night collectors of ashes and garbage in New York was begun on November 5. A few days later about 700 other drivers, together with some street sweepers, went out. They protested against the night work which had been instituted in April preceding. They claimed that they were required to work nine or ten hours per day instead of the eight hours for which they were paid; they complained that the work was hard and heavy, since at night all the lifting must be done by them single-handed, instead of with the aid of janitors; they complained also of grafting by district bosses and foremen, and of annoying rules and regulations. The drivers also demanded an increase of pay. Drivers and hostlers received \$800 per year, sweepers \$780, and stable men \$760. These sums were declared insufficient to maintain a suitable standard of living in New York. Mayor Gaynor very stiffly refused to entertain any suggestions for arbitration; he refused to confer with representatives of the strikers, and told them sharply that if they did not like their work they had better quit. Men were at once recruited from a list of some 9000 names on a reserve civil service list. By November 20, the department stated that it had 922 civil service men at work. At first, however, it was necessary to have two or even three men to a cart instead of one. Other recruits were brought from Boston, Philadelphia, Baltimore, Buffalo, Pittsburgh, and elsewhere. The cost of such recruiting, including transportation, food, and care, was \$136,000 during the first six days. In spite of very prompt and vigorous action by Superintendent Edwards the situation became acute, especially in the poorer quarters, where deep piles of refuse accumulated, polluting the air, choking traffic, and endangering the lives of thousands. There was some rioting on Sunday, November 12, and one driver was killed by chimney bricks purposely toppled over on him. The strikers, who were employed under the civil service rules, were tried and dismissed. Their places were gradually filled and the work of the department in time resumed its normal condition.

The most interesting feature of this strike was that it was the first notable strike among public employees in this country. The right of such employees to strike, especially when engaged in a business upon which the public health and welfare so intimately depend, was very widely denied. Labor leaders, on the other hand, declared that if such rights be denied then public employees would be denied a right which belongs to every free man. In any case it was generally agreed that some method of arbitration must be formulated whereby such interruptions of the public service will be prevented.

GRAND RAPIDS FURNITURE WORKERS. Some 6000 furniture workers in thirty-eight factories in Grand Rapids, Mich., were out on strike for seventeen weeks, the strike ending early in

September. The men requested a nine-hour day instead of ten, a 10 per cent. increase in wages, and the elimination of piece work. A commission of citizens investigated the conditions and found that the average wage was \$11.27 per week; this was not deemed a living wage. They found, however, that wages had increased 16 per cent. in the last five years. The commission recommended that the nine-hour day be tried, and reported that the piece system was open to abuse. Six employers compromised and resumed business on a nine-hour basis. The others opened recruiting stations in neighboring cities and secured injunctions against picketing. There was almost no disturbance, about 30 of the strikers enrolling among the one hundred special police to maintain order. The contest then became one of endurance, in which employers proved the stronger. Strike benefits of \$4 per week for unmarried men and \$5 per week for married men were given to the strikers. The employers' losses included reduction of output, inability to fill orders, and the disorganization of selling departments. Moreover, there was much loss to the community, especially to merchants; the cost of extra police to the city resulted in a reduction in the appropriations for public schools and other improvements.

GREAT BRITAIN. RAILWAY STRIKE. The most impressive of the English strikes was that of the railway trade unions, headed by the Amalgamated Society of Railway Servants, which began on August 17, after only one day's notice. About 200,000 men were out. Although there was not a complete cessation of transportation, the situation, largely on account of the existing international strike, became sufficiently serious to cause real concern. The government, alarmed at the state of affairs and fearing foreign complications, intervened. Troops were stationed at principal points. Mr. Asquith declared that in the interests of the public cessation of traffic would not be permitted and promised a special commission to inquire into the trouble. By the 21st the men were nearly all back at work. The most important cause of the strike was the dissatisfaction with the scheme of conciliation drawn up in 1907. The men claimed that the company had not lived up to the spirit of that plan. The company, on the other hand, claimed that the men by striking had completely broken faith with reference to the conciliation scheme. This scheme established two grades of boards to which the men elected representatives. One of these dealt with sectional questions, and any matters not settled by it were sent to the second or central board. These appeals were a source of aggravating delay.

The conditions of temporary settlement were that the men should return to work and that the company should reemploy them without penalty; that the conciliation boards should take up the questions in dispute at once and that a special railway inquiry commission should be appointed. This commission was at once appointed by the government and in October reported a series of compromise propositions, designed to remove the objections to the conciliation scheme. The proposals sought to facilitate a preliminary conference between the men and the companies and to make more effective the work of new boards, somewhat similar to the sectional boards. The central board was abolished and it was provided that in case of a deadlock on a sectional board an independent

chairman should be chosen to effect a final decision. As to recognition of the unions, which was an important demand, the commissioners declared that the railways, on account of their great responsibilities, must not permit any intervention between them and their men on the subjects of discipline and management. The great discontent of the men with the report led to a series of conferences early in December under the auspices of the Board of Trade, at which it was provided that the men might be represented at the meetings of the sectional boards by a secretary who might be a trade union official. Other minor compromises were effected, but dissatisfaction of labor leaders continued, primarily because full recognition of the unions was not granted. Consequently a referendum was held late in December on the question whether they should accept the findings of the commission or whether the men should prepare to strike again to secure complete recognition. At the very close of the year it was announced that the vote was overwhelmingly in favor of a strike and that the companies were making preparations against a general strike.

IRISH RAILWAY STRIKE. A thoroughly ineffective and apparently unjustifiable strike was ordered by railway men on one of the Irish roads in September. This was due to efforts of the men to prevent the road from handling goods consigned to a timber company employing non-union men. Though some support was given by railway men on other lines the strike fizzled out in a few days. This strike aroused great attention because of the rather revolutionary character of the agitation accompanying it. The tactics of the principal leader, one Larkin, were copied after the Syndicalist methods in France.

WELSH MINERS. The strike begun by about 12,500 employees of the Cambrian Coal Trust in October, 1910, continued through the greater part of 1911. The principal question in dispute was whether miners employed on thin veins and under unfavorable conditions should be guaranteed a minimum rate of pay. Although this strike was illegal, having been begun in defiance of a trade agreement, it was supported by the South Wales Miners' Federation. It was attended by much rioting in March and at various other times until its settlement in August. Indeed the total cost of extra police service to the local and the national authorities was nearly \$60,000. A basis of settlement, which was agreed upon by representatives of the strikers and the employers in May, was overwhelmingly rejected by the strikers, who demanded that the Miners' Federation of Great Britain order a general strike to secure the establishment of a minimum wage. The South Wales Federation supported the strikers by a strike benefit of \$3,000 per week. When, however, the executive committee of the Great Britain Federation declared that the issue should be submitted to arbitration, the South Wales Federation declared that it would not continue its support after the middle of July. For the continuance of the controversy after the strike, see **MINIMUM WAGE**.

LANCASHIRE COTTON LOCKOUT. On December 28 a lockout was begun in the mills of the Federation of Master Cotton Spinners, involving about 160,000 weavers; an equal number of spinners were reduced to half-time. The trouble

was due to the inability of the unions to either force three employees in different mills to join the union or to force the employers to discharge the non-union workers. The weavers made a demand for an increase of 5 per cent. in wages as a condition of settlement. The strikers were said to have a strike fund of \$1,250,000; they were also given a strike benefit of \$125,000 per week for three weeks by the Federation of Trades Unions. The manufacturers had a reserve fund estimated at \$10,000,000. The loss of wages exceeded \$1,000,000 per week. Arrangements were at once made for the intervention of Sir George Askwith of the Industrial Council. See **ARBITRATION AND CONCILIATION, INDUSTRIAL**.

CAUSES. The widespread discontent in British labor seemed difficult to explain on account of the great amount of progressive legislation for the betterment of labor conditions which has been enacted in recent years. Among the causes mentioned were: Increased unemployment, increase of wages in three and decrease in seven of the last ten years; increasing pauperism, the total of indoor and outdoor paupers in 1900 being 702,000, but in 1910, 807,000; increased "speeding up" through the adoption of American methods; rising prices.

SUBMARINE. See **NAVAL PROGRESS**.

SUBMARINE DISASTER, GERMAN. See **GERMANY**.

SUBWAY TRANSIT. See **ELECTRIC RAILWAYS**.

SUDAN, ANGLO-EGYPTIAN. The Sudan provinces, administered under the provisions of a convention (1899) between the British and Egyptian governments, are thirteen in number. The area is estimated at 950,000 sq. miles and the population at 2,500,000. The capital is Khartum, with a population in 1909 of 20,956; Omdurman had 42,779; Khartum North, 36,294. The schools directly under the central authority of the education department are kuttabs (elementary vernacular schools), primary schools, upper school, training college, and instructional workshops. Pupils in all schools in 1909-10 numbered 3540. The kuttabs form the basis of the educational system of the country, and are politically the most important part of the work of the department. The primary schools are for sons of government employees and the better class of natives; the upper school (Gordon College) is for technical and professional work. The raising of the Assuan Dam, by increasing the irrigated area, will tend to improve the possibilities of the Sudan as a cotton-growing country. One of the country's chief needs is an efficient system of fire-protection for the large and valuable forests. Lack of population, and, therefore, of labor for the agricultural districts, is one of the great obstacles to rapid development of the natural resources. The total area returned as cultivated in 1909 was 1,538,765 feddans (1,106,175 in 1908), of which 102,073 were artificially irrigated, 1,221,287 under rain-grown crops, and 215,405 flooded land. The trade in 1909 was as follows: Public imports, £E1,119,072; government imports, £E656,885; mdse., in transit inwards, £E6913. Exports, £E673,902; reexports, £E60,941; mdse. in transit outwards, £E23,709. Specie imports, £E44,158. The export of dura increased from £E7925 in 1906 to £E128,000 in the first nine months of 1909. The cattle trade is one of the most valuable resources of the country, but has been

hindered by the continual recurrence of cattle plague.

At the bottom of all problems of economic development of this country lies the question of transportation. During the decade subsequent to the completion of the railway to Khartum considerable capital expenditure was incurred both on extensions and on improvements. Total length of railways in operation in 1911, 1725 kilometers (1072 miles); of telegraph lines, 7934 kilometers; number of post offices, 57.

The revenue in 1910 was estimated at £E1,425,000 (contribution by Egyptian government, £E325,000), and the expenditure at £E1,425,000 (£E127,000 paid to Egyptian government for maintenance of Egyptian army in the Sudan). In 1910 a change in the system of administration was instituted, a duly constituted council being substituted for the informal body previously assembled by the governor-general. The governor-general (1911, Sir F. Reginald Wingate) is Sirdar of the Egyptian army.

SUDANESE NEGROES. See **ANTHROPOLOGY**.

SUGAR. The sugar beet crop in the United States was much above the average of the previous five years and was the largest ever grown. The value of the sugar and pulp from this crop was estimated at \$90,000,000, the highest previous value being about \$60,000,000 in 1909. The value of the sugar from cane is estimated at about \$45,000,000, which is far above the highest previous figures, and 58 per cent. over the five-year average. The crop of sugar from cane in continental United States is given as 308,000 tons, as compared with 311,000 in 1910, and of beet sugar at 530,000 tons, as compared with 455,000 tons in 1910. The total sugar production in continental United States was, therefore, 838,000 tons.

The world's production of cane sugar in the year 1911-12 is estimated at 8,765,000 tons, as compared with 8,412,908 tons the previous year, and of beet sugar 6,580,000 tons, as compared with 8,550,220 in 1910. This gives a total world production of cane and beet sugar of 15,345,000 tons, as compared with 16,963,128 tons in 1910, an apparent shortage of about 1,600,000 tons under 1910. There was a decrease of nearly 2,000,000 tons in the beet sugar crop. The average world production in 1905-09 was 14,367,000 tons, 5 per cent. of which was grown in the United States. The production in 1911 in the principal sugar-growing countries was as follows: British India, 2,100,000 tons; Russia, 2,000,000; Cuba, 1,800,000; Java, 1,395,000; Germany, 1,350,000; Austria-Hungary, 1,150,000; France, 550,000; Hawaii, 500,000; Africa, 385,000; Porto Rico, 350,000; West Indies and Lesser Antilles, 321,000; Australia and Fiji Islands, 272,000; Brazil, 260,000; Netherlands, 255,000; Belgium, 235,000; Philippines, 225,000; Formosa, 220,000; Argentina, 170,000; Peru, 150,000; Mexico, 140,000; Demarara, 110,000; Central America, 22,000; Spain, 21,000; Other European countries, 510,000 tons. The sugar produced in British India is all consumed locally; that given for the Philippines is the amount exported.

The imports of sugar and molasses into the United States in 1911 amounted to \$98,000,000, a decline over the preceding year. Experiments made in growing sugar beets in Hawaii, on the island of Lanai, resulted in roots of very good quality. The island is too dry for sugar cane,

with no provision for irrigation, but the natural rainfall suffices for the beet crop.

The past forty years have witnessed a remarkable increase in the productivity of the sugar beet in Germany. The amount of sugar eventually obtained per acre at the present time is more than double what it was in 1871-1876. At that period the percentage of sugar extracted averaged 8.58, while in 1906-1911 the average was 15.55 per cent.; and the net amount of sugar obtained per acre averaged 16.8 cwt. in the first period and 37.1 cwt. in the recent years. While much of the result is due to improved technical processes in the factories, it is also due in part to improvement in the varieties of beets. The increase in yield of roots has not been large.

Sugar-beet seed is not grown in the United States. In 1910 10,307,075 lbs. of seed, worth \$668,446, was imported. The Department of Agriculture finds that the imported seed is deteriorating, and is conducting experiments in its production in this country.

Investigations in the Philippines indicate that the nipa palm possesses considerable economic value for the production of sugar. The sap has long been a source of some sugar and many alcoholic drinks for native use. The palm grows wild on land otherwise valueless for agricultural purposes, propagating itself freely and producing sap for fifty years or more. It is believed that in the Philippines sugar can be made from the nipa palm more economically than from sugar cane.

SUGAR TRUST. See TRUSTS.

SULPHUR. The total production of sulphur in 1910 was 255,534 long tons, valued at \$4,605,112, as compared with 239,312 long tons, valued at \$4,432,066 in 1909, an increase of 16,122 in quantity and \$173,046 in value. Although sulphur is produced in four States, Louisiana, Utah, Nevada, and Wyoming, the production of all except Louisiana is practically negligible.

There were imported into the United States in 1910 30,833 long tons of sulphur, including crude sulphur, refined sulphur, flowers of sulphur, and all other kinds. The total value of these imports was \$558,611. There were exported in 1910 30,742 long tons of sulphur, valued at \$552,941. In 1909 this exportation was 37,142 long tons, valued at \$736,928.

WORLD'S PRODUCTION. Italy is the leading country in the world in the production of silver. There were produced in 1909 2,827,455 metric tons, valued at \$6,275,630. The production of silver in Japan has increased in recent years. In 1908 it amounted to 33,785 long tons, valued at \$393,533. Japan occupies third place among the sulphur-producing countries of the world. Small deposits of sulphur are found in Russia, Austria-Hungary, Greece, southern France, Spain, and in various parts of Asia, Africa, and North and South America.

Important improvements in the mining of sulphur in 1911 were perfected at the sulphur mine in Calcasieu Parish, La. Here the sulphur was apparently deposited in the cone of a great geyser, which dates back to the tertiary period and is contained in a limestone formation of about 70 per cent. sulphur to 30 per cent. limestone. The sulphur from this mine is extracted by a system of boilers and superheaters. The latter has vertical, cylindrical receptacles about 4 feet in diameter by 16 feet

in height containing a series of shallow trays over which water runs and is thus brought into intimate contact with live steam from the boilers. The sulphur wells are sunk in groups, the individual wells being placed 50 to 100 feet apart. The sulphur melted by the contact of steam flows from the wells in liquid form in a purity of about 99½ per cent. This is collected and stored in large bins. This process is the invention of Mr. Herbert Frasch.

SUMATRA, SOUTHERN, EXPLORATIONS IN. See EXPLORATION, Asia.

SUN. See ASTRONOMY.

SUN SPOTS. See ASTRONOMY.

SUN YAT-SEN. The first president of the provisional republic of China. He was born in 1865 in Canton, of Chinese parents. In his boyhood he was taken to Hawaii, where he attended the Iolani College under the charge of Bishop Willis. He there became a convert to Christianity, and on his return to China met with so much opposition and even persecution on account of his faith that he returned again to Hawaii. After some time spent in the islands he again returned to China. For several years he studied medicine at Canton under the medical missionary, Dr. Ken, of the American Presbyterian mission, and later in the College of Medicine at Hongkong. After receiving his diploma in 1892 he began the practice of medicine in Macao. He here became associated in the political movement carried on by the "Young China" party, which, while it at first sought peaceful methods of reform, fell later into an anti-dynastic movement. Threatened with danger of arrest, he was compelled for the second time to leave China. He returned to Honolulu, where he remained for a short time in 1896. He soon went to San Francisco and thence to England, where he made his home in London with friends whom he had known in China. The secret agents of the Chinese authorities secured his arrest, and after being lured into the Chinese legation he was forcibly imprisoned for fourteen days on the charge of being insane. The matter was brought by an English friend to the attention of the British Foreign Office, and Lord Salisbury demanded his release. This demand was complied with. From this time Dr. Sun devoted himself to the task of ridding China of the Manchu domination. He traveled over England and visited the United States and Hawaii. The Chinese government placed a price of \$50,000 on his head and the empress dowager expressed herself as willing to forgive all others, but not him. He organized the revolution by secretly drilling Chinese in halls under American officers and formed the nucleus of an army of men who went to China and there gathered and led recruits. The Chinese in the United States for the most part sympathized with his cause and freely gave money. In 1906 he printed for private circulation an appeal to Americans for aid, as special friends of China. In this appeal he said: "We must appeal to the people of the United States in particular for your sympathy and support, either moral or material, because you are the pioneers of Western civilization in Japan; because we intend to model our new government after yours; and above all, because you are the champions of liberty and democracy. We hope we may find many Lafayettes among you." Dr. Sun was active throughout the United States gathering money for the cause of the revolution during

1911. He appeared in various cities and obtained large sums from Chinese and others. The events leading up to his election as president of the new republic are discussed in the article **CHINESE EMPIRE**.

SURGERY. While many new operations and operative methods have been introduced into the field of general and special surgery during the past few years, the general tendency has been to develop more exact methods of diagnosis, rather than the cultivation of mere manual dexterity in the use of the knife. The pathological laboratory is called into play at every step, and the X-ray is used to diagnose not only bony lesions, but obscure conditions of the intestines, kidneys, and other abdominal organs. By previously administering the bismuth salts, the position and condition of the stomach and the intestines can be definitely ascertained.

Microscopical examinations of the blood, urine, and cerebro-spinal fluid throw much light on hitherto little understood conditions; and the patient is so well safeguarded by early and exact diagnosis that much of the former fear of operation has disappeared. Indeed, the prognosis is now frequently determined before the patient goes on the table. Together with all this, there has grown up a better appreciation of the powers of nature to combat infection, so that prolonged drainage of operative wounds, with the resulting hideous scars, is rare.

Among the new procedures during 1911 was the use of the cystoscope in the exploration of serous cavities. Jacobæus introduced the cystoscope through a trochar in seventeen cases of abdominal ascites, after draining off the fluid and inflating the cavity with filtered air. In several instances he was able to diagnose cancer—metastases on the surface of the liver and once cirrhosis of the liver was recognized. When there is no ascites present the use of the trochar may result in injury to the intestine, and in such cases extreme caution is necessary.

Puncture of the heart cavity was done by Milne in a case of rheumatic heart disease with defective valves and dilatation of the ventricles. The patient had become almost unconscious and pulseless, and it was found impossible to draw blood from the veins of the arm. Milne thereupon thrust a cannula through the chest wall into the interior of the heart and elicited a flow of thick, dark blood. The patient revived, but died several hours later.

Operations upon the chest are difficult on account of the admission of air into the pleural cavity (pneumothorax), whereby the lung is collapsed and retracted out of reach. To overcome this difficulty an air-tight box has been devised by Sauerbruch, in which the patient (except the head) and surgeon are enclosed. Operations can thus be done under negative pressure, which Sauerbruch obtains by exhausting the necessary amount of air and thus creating a partial vacuum. The method is useful in operating on wounds of the lungs, empyema, abscess of the lung, traumatic pneumothorax, and emphysema, ruptures of the bronchial tubes, in the removal of tumors, extraction of foreign bodies in the bronchi, etc.

Transplantation surgery was practiced to some extent during 1911, following Carrell's experiments at the Rockefeller Institute, which showed that it was possible to transfer organs or limbs from one animal to another, and that

it was possible to graft portions of arteries kept alive for weeks or months in preservative fluids. Fischer and Schmieder repaired wounded arteries with portions of veins, and found that the vein so transplanted soon took on the characteristics of an arterial wall. Transplantation of the bone *en masse* has long been practiced.

Section of the posterior spinal nerve roots was done by a number of surgeons (see **RHIZOTOMY**). Winslow performed the operation to control athetoid and choreiform movements of the limbs, which are characteristic of certain diseases of the brain. His reports indicate only a partial success. The difficulties of the procedure are considerable and the technique is not thoroughly elaborated.

Appendicostomy consists in anchoring the vermiform appendix to the lips of an incision in the abdominal wall. The appendix is opened, and access to the interior of the bowel obtained for as long a period as necessary. This operation was done in cases of intractable amebiasis, and in ulcerative conditions of the large intestine. Through the opening thus obtained lavage of the bowel was practiced and various medicinal agents introduced. The feces are discharged through the opening thus made and the lower bowel placed at rest. Appendicostomy was advocated by Allaben and Groves in cases of acute peritonitis, for the introduction of saline solutions. Groves says that the procedure in diffuse peritonitis allows the introduction of unlimited quantities of normal saline solution after operation, that it acts more efficiently than when given by rectal injection, and is less disagreeable to the patient. See **CANCER**.

SURINAM. See **DUTCH GUIANA**.

SURVEYS, CANADIAN. See **EXPLORATION**.

SURVEY OF SOILS. See **SOILS**.

SVENDSEN, JOHAN SEVERIN. A Swedish composer, died June 14, 1911. He was born in Christiania in 1849. His father was a famous bandmaster, and taught his son to play the violin. The boy wrote his first composition for that instrument when he was eleven years old. Three years later he entered the army and rose to be bandmaster. After serving six years he resigned and joined a wandering orchestra. As a member of this organization he happened to be in Lübeck, where the Norwegian consul obtained for him the aid of Charles XV. of Sweden. The young violinist was enabled to enter the Leipzig Conservatory, but was soon afterwards obliged to give up violin playing on account of paralysis of the hand. He remained in the conservatory to study the theory of music and composition. While there he wrote a quartette in A and several other instrumental pieces. In 1867 he received the honorary medal of the conservatory. In the following year he joined Musard's orchestra and arranged the incidental music for Coppée's *Le Passant*, in which both Sarah Bernhardt and Agar appeared. He left Paris to conduct the Euterpe concerts in Leipzig in 1870, but the Franco-German War prevented the concerts. His octette was played at a festival in Weimar in the same year and won great success. With the production of his symphony in D at the Gewandhaus in 1872 his fame as a composer was established. In 1871 he came to America, where he was married to an American woman; he then returned to Leipzig. He met Wagner at Bayreuth and became his intimate associate. From 1872 to 1877 he was

conductor of the Christiania Musical Association. In 1874 the Storthing granted him an annuity, and the king gave him several decorations. In 1883 he was made court conductor at Copenhagen.

SWANSON, CLAUDE AUGUSTUS. United States senator (Democrat) from Virginia. He was born at Swansonville, Va., in 1862, and was educated at the public school, at the Virginia Polytechnic Institute, and at Randolph Macon College, from which he graduated in 1885. He studied law at the University of Virginia and took his degree in 1886. From that time he practiced law at Chatham, Va., from which he was elected to the Fifty-third Congress. He was reelected to succeeding congresses until the Fifty-ninth. In 1905 he was elected governor of Virginia. He resigned his seat in Congress and served as governor until February 1, 1910. On August 1 of the same year he was appointed by Governor Mann to fill the vacancy in the United States Senate caused by the death of Senator Daniel, for the remainder of his unexpired term. He was reappointed by the governor from March 4, 1911, until the meeting of the General Assembly of the State. On September 7, 1911, he was elected Democratic nominee in the primary to fill the unexpired term beginning March 4, 1911. His term of office expires in 1917.

SWARTHMORE COLLEGE. An institution of higher learning at Swarthmore, Pa., founded in 1869. There were enrolled in the various departments of the college in 1910-11 395 students. The faculty numbered 46. There were no notable changes in the faculty during the year. The most noteworthy benefaction was a memorial gift in memory of Phoebe Anna Thorne. The productive funds of the college amount to \$1,233,008 and the income to about \$187,000. The library contains about 35,000 volumes. The president is Joseph Swain, M. S., LL. D.

SWAMP LANDS. See DRAINAGE.

SWAZILAND. A British protectorate covering an area in the southern part of Africa of 6630 sq. miles and with an estimated population (1911) of 90,000. The Swazi are a section of the Zulu race, and the native ruler is Lobatsebeni, queen regent and grandmother of the paramount chief Sobhuza, a boy of about fifteen. A resident-commissioner (in 1911 R. T. Coryndon) administers the country. By the South Africa act of 1909 it is provided that no land forming part of the native reserve shall be alienated. Imports (1910), £44,309; exports, £90,348; (raw gold, £44,499; tin ore, £41,768). Revenue (1910), £54,718; expenditure, £54,217. Debt, £90,000.

SWEDEN. A constitutional monarchy of northern Europe. The capital is Stockholm.

AREA AND POPULATION. The total area is 172,877 sq. miles; population 1900, 5,136,441; census of December 31, 1910, 5,521,943. Population per sq. kilometer, 12. Marriages (1909), 32,531; births, 142,987; deaths, 78,020; stillbirths (included in foregoing), 3482; emigrants, 21,992; immigrants, 9071. Population of Stockholm (December 31, 1910), 341,986; Göteborg, 167,813; Malmö, 88,158; Norrköping, 46,416; Helsingborg, 33,348; Gäfne, 35,302; Örebro, 30,098; Upsala, 25,960; Karlstad, 17,191; Kristianstad, 11,569; Södertälje, 11,060.

EDUCATION. Elementary schools (1908), 14,539, with 20,506 teachers and 780,248 pupils;

expenditure, 39,263,752 kronor. Public high schools (1909), 77, with 22,064 pupils; 15 elementary normal schools, with 1555; 9 technical schools, with 3700. There are special schools and universities at Upsala and Lund. Elementary instruction is free and compulsory, and illiteracy is rare. The national religion is the Lutheran; liberty of worship is granted to all sects.

PRODUCTION. About one-twelfth of the surface is under lakes. Over half the area is forest, and the products are a valuable export. The area in hectares for 1909 and the yield of principal crops for three successive years are shown below:

	Ha. 1909	1909	Yield in quintals 1910	1911
Wheat	93,000	1,881,000	2,047,619	2,241,070
Rye	404,000	6,338,000	6,237,350	6,270,240
Barley	193,000	3,037,000	3,385,320	3,199,720
Oats	807,000	11,728,000	12,876,680	11,025,770
Potatoes ...	153,000	15,696,000	.....	.....

Livestock (1908): 574,872 horses, 2,685,020 cattle, 1,010,217 sheep, 894,870 swine.

The mining and furnace products in 1909 were 3,886,000 tons of iron ore, 444,764 of pig iron, 308,823 of bar iron; silver and lead ore, 1721 tons; copper ore, 9562; zinc ore, 43,760; manganese ore, 5212; sulphur pyrites, 16,104; coal, 246,808. Gold produced, 14,083 kilograms; silver, 511.5; lead, 165,588; copper, 2,374,657; zinc, 634,872. Persons engaged in mining (1909), 29,157.

Saw and planing mills (1908), 1222, with 36,940 employees, output valued at 140,253,640 kronor; 522 joinery and furniture factories, 11,138 employees, 25,321,044 kronor; 157 wood-pulp factories, 12,362 employees, 79,578,910 kronor; 71 paper and pasteboard mills, 7889 employees, 47,364,416 kronor. Other industrial establishments are flour and sugar mills, machine shops, breweries, distilleries, and cotton and woolen mills.

COMMERCE AND COMMUNICATIONS. The trade for three years is shown below in kronor:

	1907	1908	1909
Imports	682,104,613	608,932,000	616,306,000
Exports ...	524,662,547	482,017,000	472,980,000

The principal articles of trade in 1909, with values, in thousands of kronor, were as follows:

Imports	1000 kr.	Exports	1000 kr.
Coal	55,966	Wood	134,682
Cereals	57,176	Wood pulp	57,358
Machinery	24,242	Iron	39,146
Petroleum	21,713	Butter	38,047
Coffee	33,415	Iron ore	28,596
Cotton	18,177	Paper	27,412
Skins	24,844	Machinery	27,554
Iron mfrs.	16,218	Iron mfrs.	11,699
Fish	15,537	Stone	10,631
Oilcake	18,503	Matches	11,382
Wool	13,775	Fish	9,508
Iron	10,804	Wooden wares ..	9,165
Woolens	10,887	Skins	8,991
Vegetable oils ..	15,512	Animals	4,248

The principal countries of origin and destination, with the value of their trade (special) in thousands of kronor are given at top of page 673.

	Imports		Exports	
	1908	1909	1908	1909
Germany	210,730	213,984	103,341	97,209
Great Britain	159,441	157,558	169,342	155,842
United States	60,280	47,968	9,718	15,981
Denmark	45,217	41,215	45,908	45,073
Russia (with Fin.)	26,915	39,976	23,120	24,730
Norway	21,745	21,883	24,571	24,438
France	18,592	23,454	36,791	35,862
Netherlands	16,078	16,900	14,783	13,526
Belgium	7,940	7,880	12,537	13,209
Spain	2,889	2,936	7,431	6,409

Vessels entered (1909), 33,258, of 10,096,000 tons (17,386, of 5,157,000 tons, Swedish); cleared, 33,072, of 10,147,000 tons (16,642, of 5,040,000 tons, Swedish). Merchant marine, January 1, 1910, 2900 vessels, of 775,902 tons (steamers 1211, of 583,303).

Railways in operation (end of 1910), 13,839 kilometers (state, 4422); state telegraph lines 10,273 kilometers (wires, 32,220), railway telegraph lines 10,468 (wires 27,695); number of offices, 2847; post offices, 3739. Telephone wires, 137,311 kilometers urban and 126,141 interurban.

ARMY. The army of Sweden was still in process of reorganization during 1911 in accordance with the scheme adopted in 1901. Personal service is required, but periods spent with the colors are very short, consisting of eight months for the infantry and one year with the cavalry and artillery. The obligation is for eight years in the first line of the bevaring, four years in the second, and eight in the landsturm. A proposal was made in 1911 to increase active service to eleven years, but this was rejected. On a peace footing there were about 28,000 men, of whom 22,000 were serving with the colors, while others served for brief periods, but were regularly enrolled so that the total strength was about 64,000. The artillery was armed with Krupp quick-firing guns, and a number of improvements were under way, including the organization of six howitzer batteries. Reforms were also being made in the medical service, and the engineering troops were to be augmented by balloon, searchlight, and wireless sections. The new organization tended to make the army somewhat homogeneous, as the country was divided into military districts and the divisional commanders were supreme over the troops in this direction, so that they could be held for personal responsibility. The war strength of the kingdom, including the landsturm, was estimated at about 450,000, but by the new scheme of organization this figure could be increased to 600,000.

NAVY. The strength in ships October 31, 1911, was: 12 coast-defense vessels, of 67,250 aggregate tons; 1 armored cruiser (4100); 5 torpedo gunboats (4000); 8 torpedo-boat destroyers; 52 torpedo boats (and 6 building); 3 submarines (and 3 building). A small battleship of 6800 tons is projected. Personnel, 7500 of all ranks.

FINANCE AND GOVERNMENT. The krona is the monetary unit, valued at 26.8 cents. Budget estimates of revenue and expenditure for 1910 balanced at 228,139,000 kronor; 1911, 227,911,000; 1912, 257,196,700. Estimated receipts from customs and excise in 1912, 109,000,000 kronor. The debt stood, January 1, 1911, at 537,426,444 kronor.

The executive authority rests in a king (in 1911, Gustaf V.); he is aided by an executive

council. The Riksdag is the legislative body. The ministry in 1911 was composed as follows: Minister of State, K. A. Staaff; of Foreign Affairs, Dr. J. J. A. (Count) Ehrensvärd; Justice, G. Sandström; War, Dr. D. K. Bergström; Marine, J. T. Larsson; Interior, P. A. V. Schotte; Finance, A. T. (Baron) Adelsvärd; Worship, Dr. F. Berg; Agriculture, P. A. Petersson; without portfolio, B. A. Petré, K. J. Stenström, C. F. W. von Hederstierna, K. H. von Sydow.

HISTORY

INTRODUCTION. The Conservative Lindman ministry came into power in the spring of 1906. Its conduct during the great strike of 1909 occasioned much criticism. The working classes were embittered by their failure and blamed the government for not having intervened. The Socialists in particular contrasted the course of the ministry with that of certain foreign governments, which did not hesitate to use their authority on behalf of the general interests to secure an equitable settlement of industrial disputes. The official committee of conciliation established at that time was vested with so little real power that it could accomplish nothing. The Right had thwarted any efforts to ascertain the grievances of the workmen and had introduced a plan for industrial conciliation that seemed too favorable to the employers. This was opposed by the representatives of labor, who submitted an alternative plan, which was in turn rejected by the employers. The democratic movement moreover was growing stronger, and the government did not yield to it with a good grace. The measure for electoral reform (May 26, 1909) had been carried against the will of the Conservative element. This law made the right to vote in the elections for the second chamber practically universal and, besides, established the system of proportional representation.

THE ELECTIONS. The new electoral law went into effect in the elections for the general councils in 1910, and in September, 1911, it was for the first time applied in an election for the second chamber. The number of electors was more than doubled, and this was almost exclusively to the advantage of the parties of the Left. The plan for proportional representation was readily understood by the voters and worked successfully. The result was a sweeping victory for the parties of the Left. Out of the 250 seats the Liberals secured 102, the Socialists 64 (about twice their former number), and the Right, 64. Under these altered conditions the Conservative ministry resigned and the formation of a new cabinet was entrusted to M. Karl Staaff, who had been premier in 1905, and who accepted the office on condition that new elections to the upper chamber be held before January 1. He was obliged to choose his colleagues from the Liberals; for the Socialists in Sweden, unlike their fellows in the south German states, repudiated revisionism and stood firmly for the orthodox doctrine. They refused to be represented in the ministry. The first important measure of the new cabinet was the dissolution of the upper chamber. This was for the purpose of strengthening the new government, since an early vote on the extended basis of the suffrage would tend to bring its membership more into conformity with that of the lower house, and thus

strengthen the parties of the Left. The elections for the upper house were concluded by the beginning of December. They resulted in great gains for the Liberals and Socialists and in corresponding losses for the Conservatives. The parties in the new house were distributed as follows: 87 Conservatives, 51 Liberals, and 12 Socialists. Early in July 40,000 men were locked out in the building trades, having refused, after fruitless negotiations between them and their masters, to accept the compromise proposed by the latter.

SWIMMING. Charles M. Daniels of the New York A. C. again in 1911 proved himself supreme in the amateur swimming world, but there were indications that the throne he has been occupying so long is tottering. Other swimmers to achieve prominence during the year and who threaten soon to give Daniels a hard fight for first honors were Perry McGilivray and Hans J. Hebner of the Illinois A. C., Richard E. Frizelle of the Missouri A. C., J. H. Reilly and N. F. Nerich of the New York A. C., and R. M. Ritter of the City A. C. All these swimmers made excellent showings in 1911.

The championships of the Amateur Athletic Union were held in several different cities at various times during the year. The winners of the principal events were: Indoor—50 yards, H. J. Hebner; 100, 220, and 500 yards, C. M. Daniels; fancy diving, F. Bornemann. Outdoor—400 yards, R. M. Ritter (5 minutes, 52½ seconds, new record); 880 yards, L. B. Goodwin; 1 mile, J. H. Reilly (25 minutes, 40½ seconds, new record); high diving, G. W. Gaidzik.

Yale won the intercollegiate indoor championship, with Pennsylvania a close second. W. F. Howe of Yale captured the 50-yard and 100-yard events, F. R. Cross of Princeton the 220 yards, J. Willis of Pennsylvania the plunge for distance, and J. C. Stoddard of Yale the fancy

diving. Yale also won the water polo title. In the outdoor events Princeton carried off the laurels.

In the English championships H. Hardwick of Sydney made the best showing by capturing the 100 yards and 220 yards indoor and the 400 yards outdoor. R. M. Ritter of New York won the 50-yard and 220-yard events in the Canadian championships.

SWISS UNIVERSITIES. See UNIVERSITIES AND COLLEGES.

SWITZERLAND. A federal republic, consisting of twenty-five cantons (or, counting the two Unterwalds, the two Basels, and the two Appenzells as one each, twenty-two). Capital, Bern.

AREA AND POPULATION. The twenty-five cantons are given in the table below, with total area of each in sq. kilometers, area under lakes (sq. kil.), population according to the census of Dec. 1, 1911, density per sq. kil., population according to creed (Protestant or Catholic), and according to language (French, German, or Italian). Figures for creed and language are provisional and subject to slight revision. The total sq. kilometers are equivalent to 15,955 sq. miles.

Population in actual residence at time of census taking 1910, 3,765,123; 1900, 3,325,023; 1880, 2,846,102; 1850, 2,392,740. Total Jews in the Federation in 1910, 19,023; 1880, 7373; 1850, 3145. Total speaking Romansch as their mother tongue 1910, 39,834, of whom 37,147 in Graubünden (total 1880, 38,705).

Marriages (1910), 27,344; births, 96,669; deaths, 59,678; emigrants, 5178 (4256 to North America).

Bern had (December 1, 1910), 85,651 inhabitants; Zurich, 100,733; Basel, 132,276; Geneva, 123,154; Lausanne, 64,446; St. Gall, 60,177; Lucerne, 39,339; Neuchâtel, 23,741; Fri-

	Total area	Lakes	Pop.	Dens.	Prot.	R. Cath.	Fr.	Ger.	Ital.
Zürich	1,724.76	73.16	503,915	292	379,920	108,667	5,714	472,990	19,696
Bern	6,844.50	121.63	645,877	94	547,612	92,278	104,412	528,554	12,247
Lucerne	1,500.80	66.42	167,223	111	17,354	148,806	1,816	161,083	4,808
Uri	1,076.00	19.99	22,113	21	1,243	20,822	80	20,937	1,053
Schwyz	908.26	46.91	58,428	64	2,347	55,869	258	56,311	1,612
Obwalden ...	474.80	10.81	17,161	36	535	16,631	66	16,738	330
Nidwalden ..	290.50	33.94	13,788	48	233	13,448	31	13,329	319
Glarus	691.20	6.53	33,316	48	23,951	9,272	66	31,733	1,306
Zug	239.20	32.66	28,156	118	2,590	25,490	217	26,406	1,454
Fribourg	1,674.60	68.16	139,654	83	19,206	119,929	94,878	42,634	1,911
Solothurn ...	791.51	0.23	117,040	148	39,004	77,203	2,818	111,373	2,570
Basel-Stadt ..	35.76	.....	135,918	3,776	86,015	45,564	3,601	127,491	4,021
Basel-Land ..	427.47	.....	76,488	179	57,115	18,850	1,124	72,809	2,548
Schaffhausen ..	294.22	.....	46,097	157	35,616	10,054	379	43,795	1,712
Appenzell A.-Rh.	242.49	.....	57,973	240	50,763	6,958	184	56,505	1,285
Appenzell I.-Rh.	172.88	0.47	14,659	85	985	13,615	32	14,469	97
St. Gall	2,019.00	60.90	302,896	150	116,080	183,612	1,099	282,722	17,584
Graubünden ..	7,132.80	11.76	117,069	16	61,087	57,552	838	58,465	20,963
Aargau	1,404.10	8.43	230,634	164	128,065	100,362	1,532	222,571	6,197
Thurgau	1,011.60	144.00	134,917	133	85,383	48,453	593	125,876	8,328
Tessin	2,800.90	74.96	156,166	56	4,109	145,270	1,008	5,829	147,790
Vaud	3,252.00	388.57	317,457	98	263,720	52,979	264,222	34,422	16,694
Valais	6,224.49	14.77	128,381	25	3,093	124,212	80,316	37,351	10,412
Neuchâtel ...	807.80	88.32	133,061	165	112,185	18,605	111,697	17,305	3,747
Geneva	282.35	36.15	154,906	549	70,379	76,292	120,413	17,466	12,641
Switzerland ..	41,323.99	1,308.77	3,753,293	91	2,108,590	1,590,792	796,244	2,599,154	301,325
Total 1900.....			3,315,443	.....	1,916,157	1,379,664	730,917	2,312,949	221,182
1880.....			2,831,787	.....	1,667,109	1,160,782	608,007	2,030,792	161,923
1850.....			2,392,740	.....	1,417,786	971,809	.....	.....	.....

bourg, 20,293; Montreux, 18,800; Solothurn, 11,688.

EDUCATION. Education is controlled by cantonal and communal authorities. Primary instruction is free and compulsory. Illiteracy in the Protestant cantons is rare; but in the Roman Catholic school attendance is not strictly enforced. The following table shows the number of schools and students enrolled in 1909:

Schools	No.	Students
Kindergarten	1,135	50,243
Primary	4,135	529,590
Secondary	642	54,474
Continuation	3,454	100,953
Polytech. and high	8	18,835
Intermed. and indus.	248	27,071
General	303	13,390
Reform	68	2,862
Deaf and dumb	18	813
For weak minded	27	979
For orphans	35	636
For epileptics	1	45
Missionary	3	189
Music	3	3,500
Total	10,085	803,600

Switzerland possessed in 1910, besides the Federal Polytechnikum in Zurich, seven universities (Zurich, Bern, Basel, Geneva, Fribourg, Lausanne, and Neuchâtel), with more than 10,000 students and occasional attendants.

Religious toleration is denied to Jesuits alone.

PRODUCTION. Number of persons above the age of 14 engaged in agriculture (1905), 783,915. Of the total productive area, 866,500 hectares are under meadows, 687,540 under pasture, 244,731 under crops, 10,449 under gardens, 24,866 under vines, 200,934 under worked forest, and 53,429 under sedges.

The area and yield of principal crops are shown below for two years (1911 preliminary), with yield per hectare in 1910:

	Hectares		Quintals		Qs. per ha.
	1910	1911	1910	1911	
Wheat	42,400	42,365	750,000	959,220	17.7
Rye	24,300	24,254	410,000	464,321	16.9
Barley	5,200	5,181	86,000	98,800	16.5
Oats	32,600	32,644	630,000	704,000	19.3
Corn	1,300	1,330	30,000	30,800	23.1
Vines*	24,866	23,700	408,755	854,770	16.4

* Production in hectoliters.

Tobacco is cultivated in three cantons. The timber industry, pisciculture, salt mining, cement manufacture, and the manufacture of alcoholic liquors are leading industries. There are reported to be 2100 dairies, devoted largely to the supplying of the numerous chocolate, condensed milk, and cheese factories.

About 130,000 people are engaged in house industries. The silk industry is increasing, the watch industry declining. Silk mills, 80, employing 14,000 looms and about 25,000 persons. Employed in the cotton industry, 30,000 persons; spinning mills, 63, with 1,496,689 spindles; weaving mills, 65, with 19,750 looms; thread mills, 23, with 69,564 spindles. About 75,000 persons are employed in the embroidery and allied industries. Number of factories of all sorts in 1910, 7820; horsepower, 515,859; employees, 1,793,166.

COMMERCE. The trade is given in francs (C. & B.=coin and bullion) at top of next column.

	1908	1909	1910
Imps. mdse.	1,487,149,157	1,602,139,539	1,745,021,011
" C. & B.	46,827,446	39,897,689	42,890,821
Exps. mdse.	1,038,437,322	1,097,665,784	1,195,872,131
" C. & B.	21,365,553	39,893,550	28,258,200
Transit	1,021,846,844	987,077,999	.....

The values of the important articles of special commerce are given below for 1910:

Imports	1000 fr.	Exports	1000 fr.
Cereals, etc.	177,400	Cottons	229,300
Silk	159,800	Silks	163,300
Coal	88,000	Watches	147,000
Animals	81,800	Machinery	73,900
Cottons	75,600	Spun silk	62,700
Prec. metals	73,200	Cheese	62,500
Woolens	64,100	Chem. prods.	52,100
Wine	60,100	Raw silk	50,100
Chem. prods.	57,000	Chocolate	41,400
Cotton (raw)	53,300	Milk	33,800
Iron	52,100	Woolens	22,500
Machinery	44,300	Skins	21,000
Sugar	38,800	Straw goods	19,000
Timber	35,400	Woolen yarn	16,000
Iron mfrs.	33,900	Jewelry	16,000
Meat	30,400	Iron mfrs.	13,600
Leather	28,700	Cotton yarn	12,700
Wool	25,300	Animals	11,400
Cotton yarn	21,000	Implements	10,200

The countries of origin and destination, with value of trade in thousands of francs, are as follows:

	Imports		Exports	
	1909	1910	1909	1910
Germany ..	533,810	565,720	254,019	270,165
France	306,131	346,591	120,583	130,045
Italy	185,169	203,083	82,528	85,593
Aus.-Hun. ..	102,074	110,746	70,069	80,072
Gr. Brit.	90,668	112,677	181,709	200,355
Russia	82,412	85,618	34,268	41,812
U. S.	63,554	68,824	146,274	143,932
Asia	40,995	44,882	35,241	40,355
Belgium	34,767	36,951	19,796	22,911
Africa	27,644	29,599	12,597	12,627
Neth'nds	16,818	18,724	8,361	9,577
Spain	12,240	18,583	18,188	20,916
Australia ..	12,291	13,287	8,205	11,699
Other c'tries	93,567	89,736	99,150	117,849
Not stated. ....	.....	.....	6,678	7,964
Total	1,602,140	1,745,021	1,097,666	1,195,872

COMMUNICATIONS. Railways in operation January 1, 1910, 4975 kilometers (3091 miles). The Bodensee-Toggenburg Railway was opened for traffic October 1, 1910. The line is about 62 miles long, with termini at Romanshorn (Thurgau) and Rapperswil (St. Gall). It crosses the Sitter River over a bridge 1238 feet long and 330 feet high; goes through the Bruggwald tunnel, 5709 feet; through the Wasserfuh tunnel, 12,741 feet; and through the Rickenunnel, 28,390 feet. The northern approach to the Simplon tunnel made considerable progress during the year, involving as it did the great Lötschberg, the Bietschthal and other tunnels. The Lötschberg tunnel was holed through in March, and the other tunnels made notable progress. (See TUNNELS.) An important electric cable line up the Niesen, 6000 feet above Lake Thun, was being built with a gauge of 3 feet 4 inches, and a gradient at the rate of 68 per cent. Progress was also being made on the Eismeer-Jungfrau Jock section of the Jungfrau line, and with the electrification of the Mont Cenis tunnel. State telegraph lines (1910) 3615 kilometers, wires 26,021; number of offices, 2286; telephone lines, 20,913 kil.; wires, 338,219; post offices, 1953.

FINANCE. The monetary unit is the franc, worth 19.3 cents. The revenue and expenditure for three years are given below in francs:

	1908	1909	1910
Revenue	147,391,133	155,678,421	166,866,721
Expenditure	150,879,386	158,842,817	161,330,520

Revenue and expenditure (actual) for 1910 are given as follows in thousands of francs:

Revenue	1000 fr	Expenditure	1000 fr.
Customs	80,661	Posts & Rys.....	71,392
Posts & Rys....	73,525	Military	42,263
Investments	4,653	Interior	14,360
Military	4,266	Com. & Ind.....	12,580
Real Property....	1,756	Customs	7,526
Com. & Ind.....	959	Debt charge	7,124
Gen. Admin'tion..	836	Gen. Admin'tion..	1,371
Interior	96	Political	1,777
Political	21	Justice	823
Finance	13	Finance	860
Misc.	81	Misc.	1,855
Total	166,867	Total	161,331

The public debt stood January 1, 1911, at 242,573,786 francs.

ARMY. During the year the reorganization of the army was in progress. The four army corps were to be supplanted by three army commands, and the eight divisions into which the army was formerly organized were to be replaced by six. Each division was to have three brigades of two regiments of infantry, and the mountain troops, comprising four brigades, will form the third brigade in four of the six divisions. The artillery for each division will consist of twelve field and two howitzer batteries, instead of six field batteries as previously. The field army was revived, and a different disposition of the Landwehr and Landstrum in the plan of mobilization was provided for, as well as the organization of various supply troops, with the aim of securing increased efficiency and mobility for the field army. The law providing for these reforms, which was voted December 15, 1910, by the Council of Estates on March 31 passed the National Council.

The effective strength of the Swiss national army on January 1, 1911, represented a substantial increase over the strength of January 1, 1910, as follows: The effective of the army of the first line, the Elite and Landwehr, was 211,567 men, of whom 142,054 were in the Elite, and 69,513 were in the Landwehr, as compared with 140,784 and 68,546 on January 1, 1910. The Landstrum in 1911 consisted of 52,909 infantry, 15,380 men in other arms and departments, as compared with 52,621 and 13,917 respectively in 1910. The number of men available for the complementary service was increased on January 1, to 206,705, so that the total strength available on mobilization, including the army of the first line, the Landwehr and the complementary service is 486,851. The army budget in 1911 was greater than in previous years, and amounted to 42,926,291 francs for military purposes, as compared with 41,144,777 francs voted in the previous year, or an increase of 1,781,514 francs.

In eight years the increase for military expenses in the annual budget has been 14,397,634 francs, or a mean of 1,799,704 francs.

After further experiments by the army technical committee of rearmament, which were fol-

lowed closely by the parliament committees, a change of service rifle was determined by the Council of Estates and on April 4, 1911, an appropriation of 15,710,000 francs to be covered by a loan was voted to effect the transformation after a delay of four and one-half years. It was reported that the projected change principally concerned the following points: The gun barrel was to be different, the new cartridge requiring for its complete discharge a chamber of smaller dimensions. The entire length of the barrel was to be of thicker metal with a different form of rifling. There were to be a few modifications in the butt and stock.

GOVERNMENT. The executive authority is vested in a federal council of seven members, presided over by a president who is elected for one year. The legislative body is the National Assembly, composed of two chambers. Excepting for restrictions imposed upon all the cantons by the federal constitution, each is sovereign within its boundaries. The president from January 1 to December 31, 1911, was Marc-Émile Ruchet. Dr. Louis Forrer, elected December 14, 1911, succeeded to the presidency January 1, 1912. Heads of departments in 1911 were: War, E. Müller; Justice, Dr. Hoffmann; Finance, R. Comtesse; Commerce, etc., Dr. A. Deucher; Posts and Railways, Dr. L. Forrer; Interior, J. A. Schobinger.

HISTORY. The returns of the decennial census taken in December, 1910, gave Switzerland a population of 3,765,123 in actual residence, an increase of 440,000 over the figures of 1900. This increase was especially marked in the cities, and it required a redistribution of election districts in six of the cantons. It also increased the number of deputies in the National Council, who thenceforth numbered 189. The question of proportional representation which for many years had agitated the country was submitted to popular vote on October 23, 1910, and was negatived by a vote of 262,066 against 238,928.

In spite of this check, however, the cause of electoral reform continued, on the whole, to advance in 1911. Saint Gall, one of the larger cantons, adopted it after a long contest by a vote of 29,998 against 28,506. This made the ninth canton to accept the system. In Zurich it was rejected by a slightly larger vote than the canton had given against it in the plebiscite of October, 1910. One canton, Lucerne, which had already declared for the system, carried it into effect in 1911. In general, the advocates of proportional representation were confident of its early adoption throughout the country. Plans for the insurance of workingmen against sickness and accidents had been under discussion in Parliament for several years. A law on this subject, which had been carefully framed to meet the desires of all concerned, was presented during the summer session. As to sickness insurance, the main feature was subvention of private insurance companies and mutual insurance societies, that already existed or might be formed in future, provided that they conformed to certain rules laid down in the measure. Sickness insurance was not arbitrary, although the cantons and communes had authority to make it so within their jurisdictions. The accident insurance provision required the employers to take out insurance in a private company or mutual insurance society, which was to be under the control

and supervision of the Federal Council. The insurance act passed the Council of Estates unanimously and the National Council, with only twelve dissenting votes. The referendum was demanded by 75,000 citizens, and the date February 4, 1912, appointed for the popular vote.

The elections for the National Council passed off quietly on October 29. According to the first returns it appeared that the composition of the council would not differ much so far as the parties were concerned from that of its predecessor. The 189 seats were divided as follows: 113 Radicals of the Government party, 38 Catholic Conservatives, 15 Socialists, 14 Liberals of the Centre, 5 Democrats, and 4 belonging to no party.

SWORDS, EDWARD JENNER. An American railroad official, died August 3, 1911. He was born in New York City in 1842, and was educated in the schools of that city. In the Civil War he served as engineer in the volunteer service of the United States navy, and in that capacity performed an exploit of remarkable heroism. During the bombardment of Fort Fisher, December 24, 1864, the ship to which he was attached was struck below the water line by a ten-inch shell. This made a large aperture, and Swords and another volunteer offered to close it. In the face of a hot fire from the fort, he took a six-inch plug and, lowering himself into the water underneath the vessel, drove this into the hole with a sledge-hammer. As a result of this exploit, the ship was saved and was prepared to take part in the action on the following day.

SYNGE, JOHN M. See LITERATURE, ENGLISH AND AMERICAN, *Drama*.

SYNTHETIC GEMS. See CHEMISTRY, INDUSTRIAL.

TAAL VOLCANO. See VOLCANOES.

TAIWAN. See FORMOSA.

TALLADEGA. See ALABAMA.

TARGET, ELECTRIC. See MILITARY PROGRESS.

TARIFF. The question of the tariff filled the largest place in the political history of the United States during the year 1911. It was, however, more from its political than from its economic standpoint that it derived its importance. Criticism of the Payne-Aldrich bill was not so pronounced as in 1910, but certain schedules in that bill continued to receive the denunciations of Democrats and Progressive Republicans and received a milder criticism from President Taft, who repeated his assertions, made directly following the passage of the bill, that the wool schedule should be revised and that it was in some aspects indefensible.

The presence of a Democratic majority in the House of Representatives for the first time in many years made it possible for the leaders of that party to enter upon an extensive effort to revise the tariff in accordance with Democratic theories. The very small majority of Republicans in the Senate, with the uncertainty as to the attitude of the Progressive Republican senators toward the policy of the administration on the tariff gave a fair degree of confidence that the bills which passed in the House would also pass in the Senate by a coalition of Democrats and Progressive Republicans. This assumption proved to be true.

The Canadian reciprocity agreement was, in a measure, divorced from party politics. The Democrats were committed to the general prin-

ciple of reciprocity, as it implied a reduction of duties, and the Republican party has been for years, at least theoretically, in favor of reciprocity with foreign countries. The measures directly pertaining to tariff legislation were the so-called Farmers' Free List bill, the Wool bill, and the Cotton bill. In addition to the events connected with the passage of these bills, was the offer of the President to have the tariff board made a permanent organization. These matters will be discussed below.

CANADIAN RECIPROCITY. The possibility of reciprocity between the United States and Canada was suggested to the Dominion Minister of Finance, Mr. Fielding, by President Taft in March, 1910. The suggestion was favorably received and the President met the Canadian minister at Albany, N. Y., and conferred with him in regard to the adoption of a maximum and minimum treaty under the new tariff law. The President in this conference expressed a desire that the negotiations between the United States and Canada might be carried farther than the mere adjustment of a maximum and minimum agreement, and consider, in addition, the feasibility of reciprocity. To this the Canadian minister made a favorable response. Formal negotiations were undertaken in the autumn of 1910, and after several postponements a conference between the negotiators of the two governments was formally reached on January 26, 1911. The following day the President sent the agreement to Congress with a special message, urging the enactment of the necessary legislation.

The agreement was presented concurrently to the Dominion Parliament at Ottawa. Taken generally, the reciprocity agreement opened the markets of the United States to the leading agricultural products of Canada, notably wheat and other grain, and also to her dairy products, eggs and poultry, fish, sheep, cattle, and other live animals. Rough lumber was also admitted by the agreement free of duty to the United States, as were print paper, wood pulp, and several other raw materials. In return for these concessions Canada agreed to admit free cottonseed oil, American fruits, and some other products, and grant reduced duties on agricultural implements and other manufactured articles. The total value of dutiable articles which the United States purposed to make free under the agreement was \$39,811,000, or 76.4 per cent. of the total dutiable exportations of Canada into the United States in the fiscal year 1910. The total value of articles previously dutiable which Canada purposed to make free amounted to \$21,658,000, or 16.5 per cent. of all the dutiable imports into Canada from the United States in 1910.

Opposition to the reciprocity agreement was strongest in New England and in the States of the Northwest bordering on Canada. In these States the chief opposition was against the admission of Canadian wheat and grain free. The provisions relating to the admission of paper and wood pulp were those to which the most aggressive opposition developed in Congress. By special agreement these provisions were not dependent on the acceptance by Canada of the reciprocity agreement. These provided that if Canada accepted the agreement, wood pulp of all kinds, news print paper and other paper and board to the value of four cents per pound should be admitted into the United States free

of duty, but only such pulp and paper should be admitted free upon which there were no export restrictions. Consequently their entry was confined to pulp and paper made from wood cut on private lands, as the Provinces of Ontario and Quebec refused to allow wood cut on crown lands to be exported in the raw state. An attempt was made in the Senate to amend the bill so as to make the free admission of Canadian pulp and paper contingent upon the ratification of the agreement by Canada. This amendment was offered by Senator Root, who claimed that under the terms of the reciprocity agreement Canadian pulp and paper would be admitted without duty even if Canada should reject the agreement, and that the act would discriminate against other countries with whom tariff trade agreements containing a "most favored nation" provision had been made. This amendment was defeated on June 26. The provisions relating to paper and wood pulp had the active support of the newspapers, as their passage would provide for cheaper paper used in printing. On February 14 the reciprocity measure was passed by the House by a vote of 221 to 93. The Senate, however, failed to concur in this action, and on the adjournment of the Sixty-first Congress the President summoned a special session to act on the reciprocity agreement (see CONGRESS).

The first vote on the bill in the special session was taken in the House on April 22, when it was again passed by an increased majority of 267 to 89. The Senate postponed action for two months, but finally passed the measure by a vote of 53 to 27. Voting for the bill were 18 regular Republicans, 3 insurgent Republicans and 32 Democrats; against it were 12 insurgent and 12 regular Republicans and 3 Democrats. The agreement was at once signed by the President. The work of the Canadian and American commissioners, Congress, and the President was rendered null and void by the defeat of the reciprocity agreement by the Canadian electorate, except as to the provisions for the admission of wood pulp, which went into effect on the passage of the measure. See CANADA.

FARMERS' FREE LIST BILL. This was the first of the bills to revise the tariff introduced by Representative Underwood, chairman of the ways and means committee. It was introduced into the House on April 19. In this bill all agricultural implements were declared to be free. Another clause provided for the admission of barbed wire fencing free and of wire and other material which could be used for fencing, including wire rods and wire rope. The bill also placed boots and shoes of all kinds on the free list. Leather, however, was not placed on the list. There were two clauses affecting meat and flour. As submitted in the House these placed meat and flour on the free list. In the Senate an amendment was placed on the provision limiting the operation of these two clauses to imports from those countries with which the United States had a reciprocal relation. This limitation made Canada the only country which would be affected by the provisions of the clauses. This bill passed the House on May 8 by a vote of 236 to 109. All the Democrats, 24 Republicans, and 1 Socialist in the House voted for it. In the Senate it was at first defeated by a tie vote, but after amendments had been made, it was passed on August 1, by a vote of 48 to 30. All

the Democrats, and 12 Republicans, chiefly Progressives, voted for it. As it contained amendments, the bill went to conference and the measure as reported was passed on August 17. On August 18 the President vetoed the measure. His reasons for this action were, first, that he had no adequate information upon it to pass an opinion as to the merits of the measure. He declared that revision should not be attempted until a report upon the articles affected had been made by the tariff board. He said the bill was so loosely drawn as to involve the government in endless litigation and to leave the commercial community in disastrous doubt. The measure was not passed over the President's veto.

THE WOOL BILL. Schedule K, relating to wool, was that portion of the Payne-Aldrich bill which met with the most hostile criticism at the time of the passage of that bill. Even the advocates of higher protection were unable to defend it, and the President declared that it was indefensible. It was well known that efforts would be made by the Democrats in the House to amend this bill. On June 6 Mr. Underwood submitted a bill for the revision of Schedule K. This bill reduced the ad valorem duty on raw wool from about 48 to 20 per cent. and made corresponding reductions in the duties on woolsens. After a short debate the House passed the bill on June 20 by a vote of 221 to 100. In the Senate a substitute bill was offered by Senator La Follette. This measure fixed the duty on raw wool at 35 per cent. The committee on finance in the Senate reported this bill adversely, but on July 27 a coalition of Democrats and Progressive Republicans passed it by a vote of 48 to 32. Senator La Follette and Mr. Underwood then took up the two measures passed by the Senate and House, in conference, and arrived at a compromise by which the tax on raw wool first class was made 35 per cent., second class 10 per cent., and the average duty on woolsens 55 per cent. This bill, against the vote of nearly all the regular Republicans and some of the insurgent Republicans, passed the Senate on August 15 by a vote of 38 to 28. On the previous day it had passed the House by a vote of 206 to 90. The President on August 17 vetoed the bill.

In his veto message the President stated his reasons, in the main, on the following grounds: He declared that he had been elected President on a platform which declared for a protective tariff and which fixed the proper measure of protection at "the difference between the cost of production at home and abroad." The Payne Tariff bill was passed as a result of his action in calling an extra session of Congress. That bill contained certain rates of duty which, in the opinion of many, were excessive. Granting the truth of this criticism, there were no means available by which it would be impartially determined what was the actual difference in the cost of production between the products of the United States and the same products abroad. A widespread conviction arose that such information must be secured before the tariff could be properly revised. For this reason and to prevent the evils of log-rolling and compromise, it was necessary to reduce the tariff schedule by schedule. It was further necessary to establish a permanent tariff commission that these exact facts might be obtained. Although the effort to establish this commission was defeated, a

ariff board was appointed by the provisions of the Payne law, and by added appropriations the President was enabled to use this board to do substantially the work that the commission was intended to accomplish. In order to secure authoritative data for the revision of the wool schedule, Congress called upon this board to undertake an examination into the woolen industry and furnished a report by December 1, 1911. Upon such a report the tariff board has been engaged, and if the passage of a bill to amend Schedule K, the woolen schedule, is postponed until December 1, Congress will then be in possession of a full and satisfactory report upon the whole schedule, which is the most complicated schedule in the tariff. It is apparent that many rates in the present schedule are too high, but there are no sufficient data upon which it can be determined how much they should be reduced in order to furnish a proper measure of protection and no more. The wool bill as finally passed is a compromise between an avowed tariff for revenue and anti-protection bill passed by the House, and a previous protection bill passed by the Senate. The industrial welfare of the country would be endangered by the revision of the wool schedule without exact data as to the extent to which it should be revised. The President has a double duty, to guard the industries of the country to the extent of giving them the benefit of a living measure of protection and to recommend a reduction of excessive duties to this level. In concluding his message the President said: "There is no public exigency requiring the revision of Schedule K in August without adequate information rather than in December next with such information. December was the time fixed by both parties in the last Congress for the submission of adequate information upon Schedule K, with a view to its amendment. Certainly the public weal is better preserved by delaying ninety days in order to do justice and make such a reduction as shall be proper, than now blindly to enact a law which may seriously injure the industries involved and the business of the country in general." An attempt to pass the measure over the President's veto in the House failed of the necessary two-thirds vote by a margin of 14.

THE COTTON BILL. The third of the tariff measures introduced by Mr. Underwood was brought into the House on July 26. The bill was avowedly a free trade bill and it made large reductions in the cotton duties. The bill passed the House on August 3 by a vote of 202 to 91. All the Democrats and 30 Progressive Republicans voted for it. In the Senate a substitute bill was introduced by Senator La Follette. This made somewhat smaller reduction in the duties on cotton. This bill was supported by the Progressives. During the discussion of this bill in the Senate the regular Republican senators absented themselves or refrained from voting so that the Democrats were left in full control of the Senate and were able to pass all the amendments which they wished made to the bill. This included amendments reducing the iron and steel schedule, making a horizontal reduction of 25 per cent. in the chemical schedule and reducing to 30 per cent. the duty on machinery used in cotton manufacture. With these amendments the bill passed the Senate on August 17 by a vote of 29 to 24. It was accepted by the House and was sent to

the President. He promptly vetoed it. In his message vetoing the bill he declared that the bill had been so hastily thrown together, and so little attention had been paid to the consideration of it in the Senate, especially in the chemical schedule, that the most ludicrous results had been reached. An examination of the bill by experts, he said, especially with respect to the chemical schedule, showed the greatest confusion. In a speech delivered later he declared the bill "impossible."

TARIFF BOARD. The efforts of President Taft to have a permanent tariff board or commission authorized by legislation were continued in the Sixty-first Congress. The board as it now exists has its being under a provision of the Payne-Aldrich act of 1909, which authorized the President to employ "such persons as may be required to secure information relating to the application of the maximum and minimum principle of the tariff, and for the administration of the tariff law." In 1910-11 Congress appropriated \$250,000 for the work of the board for the fiscal year. The President wished, however, a permanent board with larger powers, and early in January a bill was introduced into the House of Representatives providing for a permanent tariff commission of five members, not more than three of whom should be from any one political party. This commission should report directly to Congress as well as to the President, and its members should be appointed for terms of six years. The objects of the commission were to be an investigation of the comparative cost of production at home and abroad and also to study the condition of foreign trade and its effects on foreign tariffs and bounties. This bill was passed by the House on January 30 after a debate lasting nine hours. The Republicans were nearly united on the measure. Of the Democrats, 93 voted against the bill and 30 for it. The Democratic leaders voted in favor of the bill. The final vote was 186 to 93. In the Senate the bill passed on March 4, in spite of strong opposition led by Senator Bailey of Texas and several of the regular Republican senators. It was amended, however, and it was necessary to hold a conference between representatives of the House and the Senate before it could be finally passed. The reported bill was killed in the House by a Democratic filibuster. Congress had previously appropriated \$225,000 for carrying on the work of the board for the year 1911-12 and had requested that a report should be made on the wool schedule by December 1, 1911. The President early in March appointed two additional members to the board, thus making it a bipartisan board of five members. The new members were Thomas W. Page, professor of economics at the University of Virginia, and William M. Howard, former Congressman from Georgia, both Democrats. The board during 1911 presented a report on the pulp and news print paper industry, Schedule M of the Payne-Aldrich bill, and a report on the woolen schedule early in December.

The President based his vetoes of the tariff bills mentioned above mainly on the fact that the tariff board had not reported on the schedules and that there was therefore no trustworthy data for deciding on the merits of the reductions made. On September 28, at St. Louis, in an address in the Auditorium, he defended the work of the tariff board against certain

criticisms which had been made in Congress and elsewhere. He said:

"It has been said that the tariff board is a mere pretext, that it is a board of my hirelings and clerks, and that it is absurd for me to delay Congress in the enactment of that which is its highest privilege—to wit, revenue measures—until I can secure, through an agency of mine, information as to the wisdom of the proposed bills.

"The best way to understand the peculiar character of the investigations of the tariff board is to compare their published report on pulp and news print paper either with the statistical work of other government agencies regarding this industry or with the hearings before the ways and means committee. It is shown that this investigation does not in any way duplicate the statistical work of the other departments, but that its scope is quite different, and yet the investigation develops data essential to an understanding of industries from a point of view of the tariff."

The report of the tariff board on the wool schedule was awaited with the greatest interest. It was sent to Congress by the President with a special message on December 20. The report in general showed that the methods of assessing duty on raw wool were faulty in that they operated to exclude wools of high shrinkage in scouring, but fine quality, from the American market and thereby lessened the range of wools available to the domestic manufacturer; that the duty on scoured wool of 33 cents per pound is prohibitory and operates to exclude the importation of clean, low-priced foreign wools of inferior grades which are nevertheless valuable material for manufacturing and which cannot be imported in the grease because of their heavy shrinkage. Such wools, if imported, might be used to displace the cheap substitutes now in use. The report showed in detail the difficulties involved in attempting to state in categorical terms the cost in wool production and the differences in cost as between different regions and different types of wool. The findings of the board showed that in the woolen district the actual manufacturing cost, aside from the question of the price of materials, is much higher in the United States than abroad; that in the making of yarn and cloth the domestic woolen or worsted manufacturer has in general no advantage in the form of superior machinery or more efficient labor to offset the high wages paid in the United States. The report of the board was exhaustive and went into every detail of the raising of sheep and of the manufacture of wools of all variety. There was no recommendation as to proposed rates of duty, as this is no part of the functions of the tariff board. The President in his message accompanying the report said: "The findings of fact by the board show ample reason for the revision downward of Schedule K in accord with the protective principle and present the data as to relative cost and prices from which it may be determined what rates will fairly equalize the difference in production cost. I recommend that such a revision be proceeded with at once." (See WOOL.) Following its report on the wool schedule, it was announced that the next work of the board would be the examination of the cotton schedule. The board in 1911 was composed of the following members: Henry C. Emery, chairman, Alvin H. Sanders, James B.

Reynolds, William M. Howard, and Thomas W. Page.

TASCHEREAU, Sir HENRI ELZÉAR. A Canadian jurist, died April 14, 1911. He was born in 1836. After studying law he was admitted to the Quebec bar in 1857 and became a queen's counsel in 1867. From 1861 to 1867 he sat in the Canadian legislative assembly. He was appointed a judge of the Quebec Superior Court in 1871 and a judge of the Supreme Court of Canada in 1878. From 1902 to 1906 he was chief justice. He was created a knight in 1902 and a member of the privy council in 1904. He was the author of several law treatises.

TASMANIA. An island state of the Commonwealth of Australia. The area is stated at 26,215 sq. miles. Final return of the census of April 3, 1911, showed a population of 191,211, as compared with 172,475 in 1901; the increase in the decade was 10.86 per cent., as compared with 18.05 for the Commonwealth. The capital is Hobart, with 38,055 inhabitants in 1911 (preliminary returns). The executive authority is vested in a governor, who is appointed by the British crown, and is assisted by a responsible ministry. The legislative power devolves upon a parliament of two elective houses. Governor in 1911, Maj.-Gen. Sir Harry Barron; premier, (from June 19, 1909), Sir Elliott Lewis. See AUSTRALIA.

TAXATION. THE CORPORATION TAX. A number of the cases involving the constitutionality of those sections of the Payne-Aldrich Tariff law imposing a tax on corporations were decided by the Supreme Court on March 13, 1911. The court upheld the constitutionality of those provisions, the contentions of the government being sustained on practically every point. One of the arguments against constitutionality was that this tax is an excise tax on the privilege of doing business in the corporate form; since this privilege is derived from the States the national government cannot tax it without invading the rights of the States. In connection with this it was argued that the corporation is an instrumentality of the State, and, therefore, under the traditions of judicial interpretation cannot be taxed by the national government. The Supreme Court held that the exemption of the instrumentalities of the States from federal taxation "has never been extended to the exclusion of the activities of a merely private business from the federal taxing power, although the power to exercise them is derived from an act of incorporation by one of the States. We, therefore, reach the conclusion that the mere fact that the business taxed is done in pursuance of authority granted by a State in the creation of private corporations does not exempt it from the exercise of federal authority to levy excise taxes upon such privileges." Another argument against the tax was that it was a direct tax and therefore must be apportioned among the States according to population. The court upheld the view that it is not a direct tax, but an excise tax on the privilege of conducting business under the corporate form: it need not, therefore, be apportioned. It was argued that the tax was objectionable since it singled out for taxation those corporations and joint stock companies doing a business for profit and did not apply to all corporations. The court held that the constitution did not require such uniformity: the law does tax uniformly corporations of the same class. It was objected

that some corporations derive a portion of their income from property, such as public bonds, which are non-taxable. The court held that this argument confuses the measure of the tax upon a privilege, with direct taxation of the state or thing taxed." The court has previously held that where a tax lawfully applies to a privilege the measure of such tax may be the income from the property of the corporation, although a part of such income is derived from property in itself non-taxable."

NATIONAL INHERITANCE TAX. Although the national inheritance tax law enacted during the Spanish-American War was repealed long since, the case of the United States v. The Fidelity Trust Company growing out of that law was only decided in 1911. This decision, therefore, is primarily of theoretical interest, although it reverted the return of some \$2,000,000 collected under the inheritance tax law, and would have considerable practical significance if the government should again enact a similar law. It involved the taxation of an annuity or deferred claim under the inheritance tax law. An inheritance left in the hands of trustees was to be paid to the inheritor quarterly through life. The value of the property left in trust was 20,000 and the internal revenue department sought to collect taxation upon a capitalized sum of \$74,678, this being fixed upon by the use of mortality tables and a 4 per cent. interest rate as the present value of the inheritance. Opposition was made on the ground that the inheritance was received only as the quarterly sums were actually paid and that it could not be taxed until paid. The lower courts, including the Court of Claims, decided against the government on the ground that this case did not differ essentially from several cases in which it had been decided that an annuity which was not invested in any special funds, such as annuities as those paid by life insurance companies, was taxable only as paid. The Supreme court reversed these decisions on the ground that the interest acquired by the inheritor "was of a contingent right to income as it should accrue, but was a vested life estate in a fund hanging in investment at the discretion of the trustee, but retaining its equitable identity."

NEW YORK. Among the more important laws of the year were certain changes made by the New York legislature with reference to the taxation of real estate, of personal property, and of inheritances. Beginning with 1912 taxes on real estate will be paid semi-annually in May and November. This change is expected to be of advantage to the poorer property holders who find it inconvenient to pay the year's taxes in one sum. It will also be of great advantage to the city by distributing its income over two periods instead of one. The city will thus not be obliged to borrow as much or as frequently as in the past. What is known as the "secured debt" law enacted in 1911, relieves from taxation bonds and other solemn obligations for the payment of money other than debts secured by mortgages on New York real estate. This relief is secured by registering the secured debt with the State comptroller by the payment of one-half of 1 per cent. of its face value. This law is in fact an extension of the mortgage recording tax law which relieved from taxation bonds secured by mortgages on New York real estate. During the month of September, the first month for registration, about \$150,000,000

of bonds were registered by the State comptroller. Another change of equal importance was the reduction in the rates of inheritance taxation. The general tendency in the taxation of inheritance is toward a progressive rate. This was carried out by the New York law of 1910 in an extreme form, the maximum rate being 25 per cent. The result was that capital and securities were being driven from the State rapidly. The new law makes no attempt to tax non-residents, except on real estate or tangible property actually located within the State. Neither stocks, bonds and other securities of non-residents on deposit in New York, nor the investments of non-residents in New York corporations will be subject to the new inheritance tax. The rates reach a maximum of 4 per cent. on direct, and 8 per cent. on collateral inheritances in excess to \$1,000,000 to any one person. More liberal exemptions were allowed also than heretofore.

WISCONSIN. The Wisconsin legislature passed a progressive income tax measure. Such a measure had been advocated by tax reformers in the State for ten years, and in recent years the platforms of both political parties have recommended its passage. This, however, was done against the opposition of the conservative members of both parties; the final passage of the law was accomplished by the fusion of the more progressive members, including those who believed in income taxation as a general means of social reform, and those who favored it as a substitute for the personal property tax. The latter feature of the new law is conspicuous, all personalty being exempted, except farm animals and merchants' and manufacturers' stocks. In addition the law contains a provision whereby receipts for taxes on personal property may be used to pay taxes on incomes. The new law applies to individuals and to business concerns, the taxation of the latter making possible a considerable application of the principal of "stoppage at source." Business concerns will be assessed as business units. Those doing interstate business will be taxed in proportion to the amount of their business and the amount of their property within the State. Corporations will report directly to the State tax commission, and will be assessed by the commission like public service corporations under the ad valorem system. Exceptions are as follows: For an individual, \$800; for husband and wife, \$1200; for each child under 18, and for each other dependent person, \$200. The rates are progressive, but different schedules are provided for corporations and for all others. For corporations the rates vary from .5 per cent. to 6 per cent., depending on the ratio of income to the assessed value of the property earning the income. Thus, where the income is less than 1 per cent. of the property, the rate is .5 per cent.; where the income is 12 per cent. or more on the property the income tax rate is 6 per cent. For all others the rates range from 1 per cent. on the first thousand dollars to 6 per cent. on all above the twelfth one thousand dollars. The administration of the tax is centralized and placed under civil service rules. There will be 40 income assessors besides deputies. In the distribution of the proceeds of the tax, however, the State will retain only 10 per cent., the counties will get 20 per cent., and the townships or cities, 70 per cent.

GERMANY. In recent years the taxation of the unearned increment in land values has become more and more common among German cities. This movement, which in some respects is based on theories of Henry George, is a natural expression of the highly developed community life of the German cities. The fundamental principles upon which it is based is that most of the increase in the value of land is due to the community and the state as a whole, rather than to the individual activity of the land owner. On February 1, 1911, the Reichstag passed the Increment Tax bill. This provided for a special tax on any increase in land values not due to the labor or expenditure of the property owner. The tax is progressive in form, the rate depending on the ratio of the increase in value to the purchase price. Thus, a tax of 10 per cent. is levied on an increment not exceeding 10 per cent. of the gross purchase price; and the rates are increased to 30 per cent. on increments exceeding 290 per cent. of the purchase price. Numerous exceptions and abatements are provided for.

TAXATION REFORM. See **MUNICIPAL GOVERNMENT.**

TEACHERS' PENSIONS. See **EDUCATION.**

TEACHERS' SALARIES. See **EDUCATION.**

TEGEA. See **ARCHÆOLOGY.**

TELEGRAPH EARNINGS. See **ELECTRICAL INDUSTRIES.**

TELEGRAPHY. The deferred message plan, which was inaugurated in the form of the night letter in 1910, underwent great development in 1911, especially in the introduction of the day letter at low rates and in the great reduction of trans-Atlantic cable rates for deferred messages. The Mercadier-Magunna system of multiplex telegraphy was given a very successful trial between Paris and Lyons. In this system the senders are tuning fork vibrators, each of which sends a current of different frequency. The receivers are vibrating metal disks acting as relays, each tuned for its particular frequency. Six printing telegraphs were so operated simultaneously with a quadruplex direct-current system, giving ten simultaneous messages per circuit.

TELEGRAPHY, WIRELESS. See **WIRELESS TELEGRAPHY AND TELEPHONY.**

TELEPATHY. See **PSYCHICAL RESEARCH.**

TELEPHONE EARNINGS. See **ELECTRICAL INDUSTRIES.**

TELEPHONY. The most notable advances in telephony during 1911 were in the field of long-distance transmission. A new type of Pupin coil for loading metallic circuits which are to be associated into phantom lines was brought forth, and it largely solves the problem of leakage and cross talk, which has so greatly retarded the phantom operation of long-distance lines. The two windings of the new type are so interleaved that no consequent poles are formed at the junctions and the capacity between the core and the casting has been greatly reduced. This step is believed to set forward the accomplishment of trans-continental telephony. The new Anglo-Belgian loaded cable was successfully equipped for phantom operation.

The construction of underground trunk lines from New York to Boston, and to Philadelphia, and from the latter city to Washington, was partially completed. These lines were laid in pump-log wooden conduits, which had been

heavily creosoted, a type which experience has shown to be extremely durable. Some 30,000 loading coils were installed on these lines, which aggregate 450 miles in length. A new type of cable, invented by Cuntz, is regarded as a very successful solution of the loading problem. It consists of a core of fine iron filaments with copper conductors applied helically. The inductance is thus uniformly distributed and may be adjusted to the exact extent necessary to neutralize the capacity of the conductors by altering the pitch of the conductors or the cross-section of the iron core.

During the year the use of the automatic system was extended to a moderate extent, the most notable increase being in Chicago. The union of the telephone and telegraph interests has promoted higher efficiency in both branches. Closer association of the Bell and independent companies in the interchange of toll and long-distance messages proved to be generally advantageous. In England the year was notable for the complete nationalization of the telephone system under the administration of the post office department.

The rapid encroachment of the telephone on the telegraph for train dispatching has continued until 25 per cent. of the total railway mileage of the country is so operated. The telephone is found to be quicker, more flexible, and fully as accurate.

TELEPHONY, WIRELESS. See **WIRELESS TELEGRAPHY AND TELEPHONY.**

TELLURIUM. See **CHEMISTRY.**

TENNESSEE. POPULATION. The Thirteenth Census showed a population of 2,184,789, compared with 2,020,616 in 1900, an increase of 8.1 per cent. in the decade. The principal cities, with their populations in 1910 and 1909, are given below (the figures in parentheses are for 1900): Memphis, 131,105 (102,320); Nashville, 110,364 (80,865); Chattanooga, 44,604 (30,154); Knoxville, 36,346 (32,637); Jackson, 15,779 (14,511).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 246,012, compared with 224,623 in 1900. The land in farms was 20,041,657 acres, compared with 20,342,058 in 1900. The improved land in farms was 10,890,484 acres, compared with 10,245,950 in 1900. The average acreage per farm in 1910 was 81.5, compared with 90.6 in 1900. The value of farm property, including land, buildings, and implements and machinery, domestic animals, poultry, and bees was \$612,520,836, compared with \$341,202,025 in 1900. The average value of all property per farm was \$2490 in 1910, compared with \$1519 in 1900. The average value of land per acre was \$18.53, compared with \$9.93 in 1900. The farms operated by owners and managers in 1910 numbered 144,931, and those operated by tenants, 101,081. Of the farms operated by persons owning all or part of the land, the farms free from mortgage numbered 118,285, and those under mortgage 24,006. The native white farmers numbered 206,821; foreign-born white, 883; negro and other non-white, 38,308. Of the non-white farmers all except 7 were Indians or negroes. The cattle and poultry of all kinds were valued at \$110,706,078, compared with \$60,878,605 in 1900. The cattle numbered 996,520, valued at \$20,690,718; horses and

colts, 349,709, valued at \$39,320,044; mules, 275,855, valued at \$35,100,810; swine, 1,387,938, valued at \$7,329,622; sheep, 795,033, valued at \$3,009,196. Poultry of all kinds numbered 8,056,145, valued at \$3,757,337. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	3,400,000	91,120,000	\$55,583,000
.....1910	3,400,000	88,060,000	49,314,000
Wheat ....1911	720,000	8,280,000	7,949,000
.....1910	711,000	8,319,000	8,153,000
Oats .....1911	315,000	6,142,000	3,071,000
.....1910	342,000	7,866,000	3,618,000
Rye .....1911	19,000	226,000	224,000
.....1910	22,000	242,000	223,000
Potatoes ..1911	38,000	1,553,000	1,683,000
.....1910	40,000	3,200,000	2,080,000
Hay .....1911	400,000	a 400,000	6,680,000
.....1910	455,000	637,000	8,536,000
Tobacco ..1911	77,000	b62,370,000	5,301,450
.....1910	110,000	83,600,000	7,022,400
Cotton ...1911		c 420,000	

a Tons. b Pounds. c Bales.

MINERAL PRODUCTION. The State is a large producer of copper. The output in 1910 was 16,691,777 pounds, a decrease from the production of 1909, which was 19,207,747 pounds. The decrease was due to the inability of the sulphuric acid plants to handle the fumes from the smelters when operated at full capacity. The entire output was from the Ducktown district, in the extreme southeastern part of the State in Polk county. The output of copper in the State in 1911 showed a slight increase over the production of 1910. This increase was due to the enlargement of the acid plants connected with the smelters of the Ducktown district, which permitted the smelting of more ore. The production of sulphuric acid is now an important factor in the smelting industry of this district. The total production of coal in the State in 1910 was 7,121,380 short tons, valued at \$7,925,350, an increase of 12 per cent. over the production of 1909, when the output amounted to 6,358,645 short tons, valued at \$6,920,564. This production was the largest in the history of the State. The mines were practically free from labor troubles in 1910. There were 11,930 men employed, and the average production for each man employed was 597 short tons for the year. There were killed in the coal mines of the State during the year, 38 men, and 210 were injured. The coal output in 1911 was estimated at the end of the year to be about 10 per cent. less than that of 1910. The iron ore mined in the State in 1910 amounted to 732,247 long tons, valued at \$1,048,323, as compared with 657,795 long tons, valued at \$997,282 in 1909. See IRON AND STEEL.

The State produces a small amount of gold and silver. The gold production in 1910 was 135 fine ounces, valued at \$2800. The silver production in the same year was 69,800 fine ounces, valued at \$37,700. The gold production in 1911 was 684 fine ounces, valued at \$14,140. The silver output was 126,683 fine ounces, valued at \$69,676.

EDUCATION. The school system of the State includes the State University, 4 normal schools, 3 for whites and 1 for colored, and city and town systems of schools, covering, in most instances, all grades from the primary through the high schools; county public high schools,

county elementary schools, and a large number of private institutions, including academies, seminaries, commercial schools, professional colleges, and universities. Special lines along which work was directed in 1911 included consolidation, with transportation, vitalized courses of study which will relate the school more directly with community life; more competent supervision of a general and special nature; plans for increased attendance, better teachers, more direct and vital participation on the part of the adult population and a more serious endeavor to make some immediate contribution to the life of the people.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions, and their populations in 1911, under the care of the State, are as follows: Tennessee Penitentiary, 1069; Bushy Mountain Branch Prison, 718; Central Hospital for the Insane, 651; Western Hospital for the Insane, 697; Eastern Hospital for the Insane, 544; Confederate Soliders' Home, 120; Tennessee School for the Blind, 218; Tennessee Deaf and Dumb School, 253; Tennessee Industrial School, 796.

POLITICS AND GOVERNMENT

The legislature met in January, 1911, and the most important measures enacted will be found noted in the paragraph *Legislation* below. The expiration of the term of Senator Frazier made it necessary for the legislature to choose his successor. The attempt to accomplish this brought about a deadlock which lasted for three weeks. This was largely due to the existence of factions in the Democratic party. The "regular" Democrats in the lower house refused to appear and take the oath of office, asserting that the fusionists intended to contest several seats. The fusionists, however, proceeded to organize the house, a majority of members being present. The upper house refused for a time to recognize the lower house as organized. After some days of absence the "regulars" returned to their places, and the business of the legislature proceeded, the organization already perfected being ratified. Senator Frazier was unable to secure a sufficient number of votes for reelection. Benton McMillin, a "regular" Democrat, was the leading candidate until the fourth ballot on January 23, when Luke Lea, independent Democrat, was elected, receiving the votes of fusionists and three regulars.

The refusal of the regular Democrats to take their seats and thus make a quorum delayed the formal seating of Benjamin W. Hooper, Republican, who was in 1910 elected governor of the State on a fusion ticket, being indorsed by the independent Democrats. The opposing candidate was Senator Robert L. Taylor. Mr. Hooper was the first Republican governor elected in Tennessee in 30 years. With him was elected as railroad commissioner, B. A. Enloe, independent Democrat. Governor Hooper was finally inaugurated January 25.

A curious situation developed in the legislature in April from an attempt to pass a bill amending the laws creating a State Board of Elections. The legislature of 1908, which was also controlled by a coalition of Republicans and independent Democrats, passed a bill which took from the governor the power to appoint three members of the State Board of Elections,

which had exclusive power of appointing commissioners of elections in each county. This power was formerly vested in the governor. The attempt was made to amend this law. This amendment consisted in increasing the number of the State board to nine, and giving to Democratic and Republican members representation. The fusionists fought the amendment, claiming it was a step toward the repeal of the prohibition laws. The bill passed the Senate and was sent to the House of Representatives. It was there amended by reducing the number of commissioners from nine to seven, and was finally passed by a majority of one, several Republicans joining the regular Democrats to pass the bill. It was sent back to the Senate and the amendment concurred in. The bill was then sent to Governor Hooper. The constitution requires that a bill passed by the Assembly and sent to the governor must be returned by that executive within five days to the house in which it originated, bearing his approval or disapproval, or it becomes a law without his signature. If he disapproves, the two houses again vote on the bill, and if it obtains a majority of the members of each house, it becomes a law. While the bill was still in Governor Hooper's hands, 35 members of the house, Republicans and independent Democrats, who did not wish the amendment to pass, left the capital and went to Alabama. Their purpose was to continue to remain out of the State until the "regulars" weakened or until the expiration of the session of the legislature and in the meantime have the governor veto the bill and leave the House without a quorum to pass it over the veto. The Senate passed the bill over the veto, but it was impossible to take any action in the House. The comptroller refused to honor warrants because of the failure to pass the appropriation bills, and the situation was becoming acute when, only a few days before the interest on the State's bonded debt was due, enough of the "regulars" weakened and agreed to vote to sustain the governor's veto, so that the fusionists returned to the State and the legislative session was finished.

In the last days of the session a contest arose over Governor Hooper's veto of a "salary grab" bill, giving each member \$500 extra pay. The amount was finally reduced to \$200, and the bill passed.

Toward the close of 1911 strong efforts were made to unite the two factions of the Democratic party.

OTHER EVENTS. Of most importance in an industrial way during 1911 was the development of water power on streams in eastern Tennessee. Three hydro-electric power plants are in construction, one on the Ocoee River at Parksville, developing 65,000 horsepower, one on the Tennessee, developing 60,000 horsepower, and one on the Watauga, developing 20,000 horsepower.

In December a coal dust explosion occurred in the Cross Mountain Mine at Briceville and 86 miners were killed.

LEGISLATION. The important measures enacted at the legislative session of 1911 include the following: Cities and municipalities are authorized to purchase property without the corporate limits, and to direct and equip a tuberculosis hospital. Some counties are given the same authority. A measure was passed

securing to a married working woman the right to receive payment for her own wages when she is dependant upon such wages for the support of herself or her children, providing she gives notice in writing to her employer. The Superior Appellate Courts of the State are forbidden to reverse any case tried or triable by jury in the lower courts, and to dismiss such cases upon the merits without giving parties an opportunity through their counsel to be heard by oral argument in such courts. Other amendments were made to the laws governing judicial procedure. The banking laws were amended. It is made a misdemeanor to sell, distribute, or have in possession spurious unauthorized rituals, or secret work of any secret or fraternal order in the State.

STATE OFFICERS. Governor, Benjamin W. Hooper, Republican; Secretary of State, H. W. Goodloe, Democrat; Treasurer, George T. Taylor, Republican; Commissioner of Agriculture, George Peck, Republican; Superintendent of Education, J. W. Brister, Democrat; Comptroller, Frank Dibrell, Democrat; Adjutant-General, Frank Maloney, Republican; Attorney-General, Charles T. Cates, Jr., Democrat; Commissioner of Insurance, George T. Taylor, Republican.

JUDICIARY. Supreme Court: Chief Justice, John K. Shields; Justices, A. S. Buchanan, Grafton Green, M. M. Neil, and D. L. Lansden; Clerk, Joe J. Roach—all Democrats.

STATE LEGISLATURE, 1911. Democrats, Senate, 25, House 74, joint ballot 99. Republicans, Senate 8, House 25, joint ballot 33. Democratic majority, Senate 17, House 49, joint ballot 66.

The representatives in Congress will be found in the article UNITED STATES, *Congress*.

TENNESSEE, UNIVERSITY OF. An institution of higher learning at Knoxville, Tenn., founded in 1794. The students in all departments of the university in 1910-11 numbered 1681. There were 157 members of the faculty. During the year P. P. Claxton, professor of education, resigned to become United States commissioner of education. Among the new appointments to the faculty were those of Dr. E. E. Buchanan, professor of mathematics; Miss Caroline Carpenter, assistant professor of languages; Dr. E. E. Rall, professor of education; James C. Pridmore, assistant professor of agronomy, and Louise G. Turner, assistant in home economics. Among the gifts received during the year was one of \$40,000 from Andrew Carnegie for the establishment of a Carnegie library. The productive funds of the university amounted to \$425,000, and the income for the year 1910-11 to \$237,764. The library contains about 35,000 volumes. The president of the university is Brown Ayres, Ph.D., LL.D.

TERMITES. See ENTOMOLOGY.

TERRY, GEORGE SETH. An American public official, died April 14, 1911. He was born in Hudson county, N. Y., and graduated from Williams College. He began his active career in a dry goods house in New York City. He became a member of the firm of William I. Peake & Co., which later became the firm of Opdyke, Terry & Steele. In the administration of Mayor Strong he served as secretary to the dock board and he occupied other positions in the city government. In 1904 he was assistant treasurer of the Republican national committee, and in 1909 he was appointed as-

assistant treasurer of the United States to succeed Hamilton Fish.

TERRY, SILAS WRIGHT. An admiral, retired, of the United States navy, died February 9, 1911. He was born at Wallonia, Ky., in 1842 and graduated from the United States Naval Academy in 1861. During the Civil War he served on the North Atlantic and the Mississippi blockading squadrons. He was advanced five numbers for gallant conduct on the naval expedition up the Red River. He held various commissions and took part in several notable expeditions. In January, 1882, while commanding the *Marion* he rescued the crew of the bark *Trinity*, which had been wrecked in October, 1880, on Heard Island, Indian Ocean. In February, 1881, while at Cape Town he guided the English ship *Poonah* off the beach, saving her from total loss, for which he received the thanks of the government of Cape Colony and of the English government. During the Spanish-American War he served on the battleship *Iowa*. His last active service was as commandant of the naval station at Honolulu. He was retired in 1904.

TESLA STEAM TURBINE. See STEAM TURBINES.

TETANUS AND THE FOURTH OF JULY. The ninth annual summary of the fourth of July injuries, compiled by the *Journal of the American Medical Association*, shows a still further decrease over the previous year in the number of tetanus cases occurring as a result of the celebration. There were only 18 cases of tetanus in 1911, as against 72 cases in 1910 and 150 cases in 1909. The number of blank cartridge wounds shows a correspondingly large decrease, viz., from 450 to 169. The most common cause of the wound is the blank cartridge, and the most common site is the hand. All but one of the 20 lockjaw patients were males, and all but 3 were under 18 years of age. The youngest was 4 years old, the oldest 40. The number of days following the injury before active symptoms appeared was 5 to 15, the average for fatal cases this year being about 8 days. A longer incubation period is thought to indicate a less virulent infection and therefore a better chance for recovery under treatment. When death occurred, it followed the appearance of symptoms in from 2 to 3 days. Blank cartridges continued to be responsible for the great majority of tetanus cases, 15 cases being due to this cause. Two cases of tetanus were due to injuries by firecrackers and one from a wound from a bomb. Ten of the 18 cases ended fatally. Besides the cases of lockjaw due directly to the use of fireworks, there were 29 cases of tetanus due to penetrating wounds from other causes, such as nails or splinters during the fourth of July season. In addition to the 10 deaths due to tetanus, 47 persons were killed in the United States by various forms of fireworks, making a total of 57 deaths. This is the lowest number from such causes during the nine years covered by the *Journal's* statistics, and shows a very decided improvement over previous years. Eleven people were killed outright by firearms, 9 by explosions of powder, bombs, or torpedoes, 5 by cannon, 2 by giant firecrackers, and 8 by various causes such as blood poisoning, explosions of chemicals, etc. The largest number of deaths due to any one cause was 12, mostly little girls, who were burned to death; in several

instances by the so-called harmless varieties of fireworks, including very small firecrackers and "sparklers."

There were 1546 non-fatal injuries—a little more than half of the total reported in 1910. Eight persons were totally blinded, 26 lost one eye each, 30 lost legs, arms, or hands, and 83 lost one or more fingers. The giant firecracker continued to hold first place as a cause of mutilating wounds, and is responsible for most of the losses of eyes, hands, and fingers. In 1911 483 injuries, including two deaths and two cases of lockjaw, were due to the giant firecracker. Firearms caused 184 accidents; 80 persons were injured by stray bullets; toy cannon caused 114 injuries, including 5 killed. In the nine years a total of 38,129 people, or the equivalent of over 39 regiments, were killed in the celebration of the fourth of July.

The remarkable decrease in the number of injuries in 1911 is believed to be due to the general agitation for a more sane observance of the holiday. An analysis of the statistics showed that the most marked decreases were in the States where the agitation for restrictive measures was strongest.

As to the curative treatment of tetanus, there was no decided step in advance, in this country. In the cases reported, tetanus antitoxin was employed in 7 instances, but always after the disease had begun. It is well known that this agent is very valuable as a prophylactic, but possesses comparatively little curative value. When employed after active symptoms of tetanus have manifested themselves, antitoxin must be given in large doses, and a review of the latest literature on the use of tetanus antitoxin seems to indicate that the best route is the intraspinal. Reports show a distinctly higher percentage of recoveries in which the antitoxin has been given in this way than when injected into the muscles. Baccelli reports using intraspinal injections of carbolic acid in weak solution in nearly 200 cases of tetanus. He lost no mild cases and saved many inflammatory cases. Of 121 severe cases all but 7 survived, representing a mortality of less than 6 per cent. in a type of disease usually highly fatal. The method has not been tried in this country.

TETLOW, JOHN. An American educator, died December 10, 1911. He was born in Providence, R. I., in 1843 and graduated from Brown University in 1864. From 1885 to 1907 he was headmaster of the Girls' High and Latin schools of Boston. In the latter year he was appointed headmaster of the Boston Girls' Latin School, and this position he held until the time of his death. He was one of the organizers of the New England Association of Colleges and Preparatory Schools and was its president in 1893. He was a member of several other associations for teachers in high and classical schools. He was president of the Headmasters' Association of the United States in 1904-5. He was the author of *Inductive Latin Lessons* in 1884, and published a series of school classics, 1893-1901. He contributed also to educational journals.

TEXAS. POPULATION. The Thirteenth Census showed a population in 1910 of 3,896,542, compared with 3,048,710 in 1900, an increase of 27.8 per cent. in the decade. The principal cities with their populations in 1910 and 1900 are given below (the figures in parenthesis are for 1900): San Antonio, 96,614

(53,321); Dallas, 92,104 (42,638); Houston, 78,800 (44,633); Ft. Worth, 73,312 (26,688); El Paso, 39,279 (15,906); Galveston, 36,981 (37,789); Waco, 26,425 (20,886); Austin, 29,860 (22,258); Beaumont, 20,640 (9,427).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the total number of farms in the State was 417,770, compared with 352,190 in 1900. The land in farms was 112,435,067 acres, compared with 125,807,017 acres in 1900. The improved land in farms was 27,360,666 in 1910, compared with 19,576,076 in 1900. The average acreage per farm was 269.1 in 1910, compared with 357.2 in 1900. The total value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$2,217,645,164 in 1910, compared with \$962,476,273 in 1900, an increase of 130.5 per cent. in the decade. The average value of all property per farm was \$5311, compared with \$2733 in 1900. The average value of land per acre in 1910 was \$14.53, compared with \$4.70 in 1900. The farms in the State operated by owners and managers numbered 198,195; by tenants, 219,577. Of the farms operated by owners, those free from mortgage numbered 128,082; those under mortgage, 65,008. The native white farmers numbered 318,988; foreign-born white, 28,864; negro and other non-white, 69,918. Of the non-white farmers 62 were Indians, 44 Japanese, 6 Chinese, and the rest were negroes. The value of the various kinds of domestic animals, poultry, and bees was \$318,646,509 in 1910, and in 1900, \$240,576,955. The cattle numbered 6,934,586, valued at \$132,985,879; horses, 1,170,068, valued at \$84,024,635; mules, 675,558, valued at \$73,979,145; swine, 2,336,363, valued at \$11,639,366; sheep, 1,808,709, valued at \$6,301,364. The poultry of all kinds numbered 13,660,645, valued at \$4,806,642. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	7,300,000	69,350,000	\$55,480,000
.....1910	6,800,000	140,080,000	88,250,000
Wheat .....1911	700,000	6,580,000	6,580,000
.....1910	700,000	10,500,000	10,290,000
Oats .....1911	737,000	18,499,000	9,989,000
.....1910	688,000	24,080,000	11,818,000
Rye .....1911	2,000	20,000	21,000
.....1910	1,000	12,000	12,000
Rice .....1911	238,300	8,174,000	6,539,000
.....1910	264,800	8,738,000	5,942,000
Potatoes ..1911	50,000	2,850,000	3,591,000
.....1910	54,000	2,764,000	3,029,000
Hay .....1911	606,000	a 606,000	7,211,000
.....1910	618,000	711,000	8,532,000
Tobacco ..1911	300	b 195,000	39,000
.....1910	300	180,000	45,000
Cotton ...1911		c 4,280,000	

a Tons. b Pounds. c Bales.

MINERAL PRODUCTION. The State produces petroleum in large quantities. In 1910 the output from the fields of the State amounted to 8,899,266 barrels, as compared with 9,534,467 barrels in 1909. The decrease resulted from the giving out of wells in the older fields of the State. In 1911 the production was slightly in excess of that of 1910, according to the preliminary estimates of the United States Geological Survey. The output, according to this authority, was 9,000,000 barrels.

The production of coal in the State in 1910

was 1,892,176 short tons, valued at \$3,160,965. The production in 1909 was 1,824,440 short tons, valued at \$3,141,945. The influence of the coal strikes in the Southwestern States extended into bituminous coal fields of northern Texas and resulted in a decrease in the bituminous coal produced. The production of lignite, on the other hand, increased slightly. The coal and lignite mines of the State gave employment in 1910 to 4197 men. The strike in the bituminous mines lasted from April 1 to June 1, and involved a total of 1776 men.

The iron ore mined in the State in 1910 amounted to 29,535 tons, valued at \$34,003, as compared with 6474 tons, valued at \$9318 in 1909.

A considerable amount of silver is mined. The output in 1910 was 364,400 fine ounces, valued at \$196,800. In 1911 there were produced 442,486 fine ounces, valued at \$243,367.

POLITICS AND GOVERNMENT

The legislature met in 1911 and the most important measures will be found noted in the paragraph *Legislation* below. On January 25, Charles A. Culberson was reelected to the United States Senate.

The most important political events during the year were those relating to the question of statewide prohibition. The legislature passed a joint resolution submitting to the voters the question of statewide prohibition, and this was signed on February 10 by Governor Colquitt. An election was held on July 22. The vote was so close that the issue was for a time in doubt. The first returns indicated a victory for the prohibitionists by about 15,000 majority, but on the final count this was changed to a vote of 6000 against prohibition out of a total vote of 462,000. On August 1 concurrent resolutions were introduced in both houses of the legislature asking Governor Colquitt to submit the question of liquor regulation, the legislature having been in special session and able to legislate only on those topics submitted by the governor. He refused the request. The legislature was overwhelmingly pro in sentiment. The governor was an anti, having been the plurality candidate and nominee where several pros were running. The 1912 campaign will be strictly on prohibition issues. In 1911 the pros centred upon Associate-Justice Ramsey of the Supreme Court to oppose Governor Colquitt, anti, for reelection. The Democratic primary, selection equivalent to election, occurs on the fourth Saturday of July, 1912.

On August 28 a concurrent resolution providing for a presidential primary similar to that in vogue in Oregon passed both houses of the legislature. The resolution was in the form of a recommendation directed to the State Democratic executive committee, that at the primary elections in 1912 candidates for President and Vice-President be included on the ballot.

Considerable interest was occasioned by the action of Senator Bailey on March 4 in sending his resignation to Governor Colquitt as the result of the action of 23-Democratic senators voting in favor of a resolution which involved the acceptance of the constitution for Arizona. The constitution provided for the initiative, referendum, and recall of the judiciary, to all of which Senator Bailey was bitterly opposed.

He based his resignation on the fact that he construed the vote of the Democratic senators as giving their support to these political theories and under that impression tendered his resignation. The telegram of resignation was, however, followed by a letter in which it was withdrawn on account of the pressure brought to bear on Senator Bailey by friends in Texas and by the governor himself. The original resignation was not accepted by Governor Colquitt. Several months later Senator Bailey announced that he would not be a candidate for reelection in 1912.

The revolution in Mexico, which resulted in the success of Francisco I. Madero, occasioned much disturbance along that part of the State which is on the border between Texas and Mexico. Large quantities of arms and ammunition were smuggled across the border by Mexican revolutionists, and on February 1 ten troops of the United States cavalry were posted from El Paso to Brownsville to prevent such smuggling. The details of the mobilization of American troops in Texas during the summer of 1911 will be given in the section *Army* in the article UNITED STATES, and in the section *Foreign Affairs* in the same article. In November conditions along the border became such that it was necessary to reestablish a patrol of United States troops along the Rio Grande River to cooperate with the civil authorities in the enforcement of neutrality. This was the result of attempts made by General Reyes and others to set on foot a revolution in Mexico. General Reyes was arrested at San Antonio on the charge of inciting a rebellion against a friendly country in the territory of the United States in violation of the neutrality laws. See MEXICO.

The result of the investigations of the international committee appointed to decide upon the ownership of a strip of land within the present limits of El Paso, which was claimed by Mexico, will be found discussed in greater detail in the article UNITED STATES, *Foreign Relations*. The commission gave El Paso all the lands north of the boundary line of 1864 and ceded the land south of that line to Mexico. As the boundary of 1864 could not be fixed, the actual settlement of the question is still deferred. According to treaties between the two countries, if the river changed to its present course by accretion, the land belongs to the United States, but if it changed by evulsion, the land belongs to Mexico. The commission held that the land was acquired by the United States by accretion as far south as the boundary of 1864 and by evulsion beyond that boundary.

The recall feature of the government of the State was declared constitutional by the Supreme Court in July. The decision arose through a contest in regard to the policy of the school board in the city of Dallas. The policy of this board in 1910 was said to have been opposed to the formally and persistently expressed wishes of the parents of the city. As a result a special election was held upon petition, at which those members of the board who were obstructing the wishes of the electors were recalled, and others were chosen in their places. The superintendent of schools was dismissed. He and several others, who had been recalled, sought an injunction restraining the new board from discharging its duties on the ground that the recall provision of the Dallas charter was

illegal and unconstitutional. The lower court refused to grant the injunction and the Supreme Court affirmed this decision. In its opinion, the court said: "The people of the city of Dallas were invested with the sovereign power of the city, by virtue of the grant of the charter to them, and the legislature has the power to grant to them the right to remove by process of the recall provision any officer who failed to discharge his duty in a manner satisfactory to the people of that city." In answer to the allegation that the recall violated the provision of the constitution for the trial and removal from office of all officers of the State, the court declared that the provision applies specifically to "officers of the State" and held that that expression had the same significance as "State officer." The members of the city board are not State officers and therefore the provision does not apply to them. The provision relating to county officers was also held not applicable, because members of the school board were not county officers.

LEGISLATION. From July 19, 1910, to January 1, 1911, there were three legislative sessions in the State. Two of these were extra sessions of the thirty-first legislature, known as the third and fourth extra sessions, and the third was the regular session of the thirty-second legislature. At the third extra session was passed but one statute of general importance: a law prohibiting exhibition of prize fights and other immoral shows by means of moving pictures. At the fourth extra session several important measures were passed. One of these amended the statutes relating to railroads by providing that where a railroad is sold under a decree of a court, the purchasers can neither act under the old franchises nor incorporate under the existing laws without paying or assuming all subsisting liabilities and claims for death and for personal injuries sustained in the operation of the railroad by the company or any receiver thereof, and for loss of and damage to property sustained in the operation of the railroad by the company or any receiver thereof, and for the current expenses of such corporation, including labor, supplies, and repairs, provided that all such subsisting claims and liabilities shall have accrued within two years prior to the beginning of the receivership, resulting in the sale of the railroad property and franchises. A bill of lading act was passed which governs the issue, delivery, and effect of bills of lading issued by all carriers except express and pipe line companies. The act makes the carriers responsible for the acts of their agents in issuing bills of lading to innocent third holders of such bills. An act was passed establishing a new prison system, making provision for a board of prison commissioners and for the management, control, and treatment of prisoners. An insurance law, passed at the previous regular session of the legislature, was repealed, and a State insurance board was established.

At the regular session of the thirty-second legislature no laws of the first importance were passed. A measure was enacted extending the jurisdiction of the railroad commissioners over all public wharves, docks, piers, elevators, and warehouses.

STATE OFFICERS. Governor, O. B. Colquitt; Lieutenant-Governor, A. B. Davidson; Secretary

of State, C. C. McDonald; Treasurer, Sam Sparks; Comptroller, W. P. Lane; Superintendent of Public Instruction, F. M. Brally; Land Commissioner, J. T. Robinson; Attorney-General, J. P. Lightfoot; Commissioner of Agriculture, E. R. Kone; Commissioner of Insurance, B. L. Gill—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Thomas J. Brown; Associate Justices, William F. Ramsey and Joseph B. Dibrell; Clerk, F. T. Connerly—all Democrats.

STATE LEGISLATURE, 1911. Democrats, Senate 30, House 109, joint ballot 139; Republicans, Senate 1, House 0, joint ballot 1.

The representatives in Congress will be found in the article UNITED STATES, *Congress*.

TEXAS (SHIP). See BATTLESHIPS.

TEXAS, UNIVERSITY OF. An institution of higher learning at Austin, Tex., founded in 1883. The number of students enrolled in the various departments of the university in 1910-11 was as follows: Law department, 300; engineering department, 228; college of arts, 1172; medical department, Galveston, 196. There were 56 members of the faculty of the main university and 83 tutors and instructors. The faculty of the medical department, Galveston, numbered 28. Prof. N. H. Brown was appointed to succeed Professor Scott in the electrical engineering department, and Senator R. E. Cofer was appointed professor in the law department. At a meeting of the Alumni Association, held in June, 1911, a plan was adopted for the raising of an annual sum of \$25,000 to \$50,000 each year for five years for the formulation of plans for the development of the university and higher education in Texas, and the proper presentation to the people of the State. By November 1 \$30,000 had been subscribed and work had already been begun toward the execution of the plan. Such a movement is unique in the history of American universities. The university is supported chiefly by legislative appropriations, and these amounted in 1910-11 to \$295,000. The estimated income was \$108,921. The library contains about 75,000 volumes. The president is Sidney E. Mezes, Ph. D.

TEXTILE MANUFACTURING. -The annual report of new textile mill construction for 1911, compiled by the *Textile World Record* of Boston, stated that 208 new textile mills of various kinds were built, or under construction, in the United States during the year. This is the smallest number reported for any year in the ten years 1902-1911, the next lowest being 222 in 1908. The record for the preceding years was 274 mills for 1910, 289 new mills for 1909. As regards new mill construction, enlargements, and improvements, the year 1911 was comparatively quiet as regards new enterprises, but many manufacturers were active in building and equipping large additions and making improvements in anticipation of improved business conditions.

NEW COTTON MILLS, 1911

	No.	Spindles	Looms
New England:			
Connecticut	1	60,000	1,200
Massachusetts	4	55,500	1,230
Rhode Island	2	20,000	.....
Vermont	1	35,000	650
Total	8	170,500	3,080
Southern States:			
Georgia	1	20,000	500
North Carolina	2	16,000	.....
South Carolina	5	136,000	3,500
Total	8	172,000	4,000

NEW COTTON MILLS, 1911 (Continued)

Middle and Western States:

New Jersey	4	.....	25
New York	1	.....	.....
Ohio	1	.....	.....
Pennsylvania	9	4,920	20
Total	15	4,920	55

During the year there was a marked decrease in the number of cotton mills built, but this was not so pronounced as regards the number of spindles, as the establishments for the most part were of larger size than usual. In mill construction South Carolina led all other States, having 80 per cent. of the spindles and looms in new Southern mills, and giving the Southern group of States a slight actual gain over New England in new mill construction for the year, or 172,000 spindles in new mills in the South as against 170,500 spindles in new mills built in New England. New cotton mills were built in four New England States, and three Southern States added to their number of mills. The total number of spindles in all new cotton mills was slightly less than 50 per cent. of the number in 1910, and approximately 25 per cent. of the record year, 1909.

During the year 1910 there was published the preliminary report of the Thirteenth Census, dealing with the textile industry. This census was made in the year 1909, and its figures were of considerable interest in connection with industrial development since the previous census of 1899, and the economical and political discussions of the tariff and other matters. The year 1909 was not a record year in most branches of the textile industries, but the statistics form some idea of the development of these great manufacturing industries. The total value of products in 1909 as compared with those of a decade previous have been summarized as follows (P. C. = per cent. increase):

Industry	Total value of products		P. C.
	1909	1899	
Cotton	\$ 616,297,000	\$332,806,000	85
Wool	419,826,000	238,745,000	62
Silk	196,425,000	107,256,000	51
Knit goods	193,812,000	95,483,000	106
Carpets and rug ..	71,864,000	48,192,000	49
Felts	11,853,000	6,462,000	83
Shoddies	7,434,000	6,731,000	11
Fur felt hats	47,501,000	27,811,000	71
Wool felt hats	4,382,000	3,592,000	22
Total	\$1,574,384,000	\$867,078,000	45

In examining these figures it must be realized that the increase of population during the period under consideration was 21 per cent., while in many cases the cost of material has been in a greater proportion than the quantity; thus the quantity of cotton used in 1909 increased but 29 per cent. over 1899, but its cost was greater by 120 per cent. In this industry, as in others, there was a greater use of finer grades of raw material. Again, the growth of new industries was shown by the fact that the quantity of silk used in the cotton industry increased from \$1,784,000 in 1899 to \$5,776,000 in 1909.

The world's active cotton spindles and mill consumption (in bales) of raw cotton in 1911 and 1900 are shown in the table at top of page 689 (statistics for the United States from the Bureau of the Census, for the other countries from various reliable sources):

United States:			
Cotton-growing States	Year	Spindles	(bales) ¹
	1911	11,077,000	2,328,000
	1900	4,268,000	1,522,000
All other States	1911	18,438,000	2,377,000
	1900	15,104,000	2,350,000
Europe:			
United Kingdom	1911	54,523,000	3,782,000
	1900	45,500,000	3,320,000
Germany	1911	10,480,000	1,685,000
	1900	8,000,000	1,400,000
Russia	1911	8,672,000	1,625,000
	1900	7,500,000	1,350,000
France	1911	7,300,000	960,000
	1900	5,500,000	700,000
Austria-Hungary	1911	4,564,000	749,000
	1900	3,300,000	675,000
Italy	1911	4,282,000	790,000
	1900	1,940,000	475,000
Spain	1911	1,353,000	315,000
	1900	2,615,000	400,000
Switzerland	1911	1,481,000	100,000
	1900	1,550,000	125,000
Belgium	1911	1,327,000	217,000
	1900	920,000	170,000
Portugal	1911	476,000	65,000
	1900	230,000	60,000
Netherlands	1911	431,000	79,000
	1900	300,000	70,000
Sweden	1911	528,000	95,000
	1900	360,000	85,000
Denmark	1911	80,000	21,000
	1900	40,000	15,000
Norway	1911	74,000	11,000
	1900	35,000	10,000
Other European countries	1911	200,000	60,000
	1900	130,000	42,000
British India	1911	6,250,000	1,650,000
	1900	4,945,000	1,162,000
Japan	1911	2,180,000	1,060,000
	1900	1,274,000	700,000
China	1911	831,000	350,000
	1900	550,000	200,000
Brazil	1911	1,000,000	370,000
	1900	450,000	85,000
Canada	1911	855,000	119,000
	1900	550,000	110,000
Mexico	1911	630,000	140,000
	1900	470,000	125,000
All other countries	1911	260,000	65,000
	1900	50,000	15,000
Total	1911	137,792,000	19,013,000
	1900	105,681,000	15,177,000

¹ The quantities for the United States are given in running bales, except that round bales are counted as half bales and foreign cotton has been reduced to equivalent 500-pound bales. Linters are included. For other countries the quantities are given in equivalent 500-pound bales.

Imports and exports of raw cotton and of cotton manufactures for selected countries are shown in the table on page 600.

THAYER, NATHANIEL. An American capitalist, philanthropist, and art connoisseur, died March 21, 1911. He was born in Lancaster, Mass., in 1852 and graduated from Harvard College in 1871. He had a large fortune and for many years held a commanding position in the financial and business life of Boston. He was an officer and director in many financial institutions. In 1887 he became a member of the Museum of Fine Arts and retained this office until his death. He made many large contributions to the funds of that institution. He was also interested in philanthropic objects and was a trustee of the Massachusetts General Hospital, the McLean Hospital, and the Conalescent Home at Waverly.

THEATRE. See **DRAMA.**

THEOLOGICAL SCHOOLS. See **UNIVERSITIES AND COLLEGES.**

THERMAL SPRINGS. See **GEOLOGY.**

THERMO-RADIO-THERAPY. See **CANCER.**

THIBY, JOHN HENRY. An American bibliophile and philanthropist, died June 23, 1911. He was born in Belgium in 1822 and received his education in the normal schools of that country. In 1859 he removed to the United States, where he opened a second-hand book store. He soon achieved a reputation as a collector, and among his patrons were Henry Ward Beecher and Horace Greeley. At the age of seventy years he retired from active work and revisited his native land. He returned to New York and engaged again in the second-hand book business. He was greatly interested in educational matters and in 1883 became a school commissioner of Long Island City. While in this office he conceived the idea of school savings banks and organized a system which spread throughout the country until hundreds of such banks came into existence, with aggregate deposits of \$15,000,000. He wrote several works on educational subjects, the best known of which is *The Early Schools of Long Island*. He also wrote many pamphlets on financial and economic subjects.

THOMAS, ABNER B. An American jurist, died January 17, 1911. He was born in Brooklyn in 1844. He was trained in early life as a civil engineer, but at the age of twenty-one abandoned that profession to enter the law. He studied at Bridgeport, Conn., and in 1866 began the practice of law in New York City. He was appointed dean of the Metropolitan Law School, which was afterwards merged into the New York Law School. While dean of the school he wrote a number of text books which attracted much attention. Of these perhaps his best known are *Mortgages on Real and Personal Property in the City of New York*, published in 1887. He was originally a Republican in politics, but in 1886 joined the Henry George movement and took an active part in the campaign. He was nominated for justice of the Supreme Court and was defeated. He afterwards became active in the New York county democracy and in 1899 was nominated as candidate for surrogate. He was elected and held this office until the time of his death.

THOMAS ORCHESTRA. See **MUSIC.**

THOMPSON, DENMAN. An American actor, died April 14, 1911. He was born at Girard, Pa., in 1833. While he was still very young his parents removed to New Hampshire. He studied at Mt. Cesar Seminary in Swanzey. He early showed a talent for acting and while still in early boyhood went to Boston. He joined a circus and for a short time traveled with it as a tumbler. In 1850, however, he secured his first chance on the stage in a minor part. After a varied career on the stage, in which he played a number of unimportant rôles, he had in Pittsburgh in 1875 an inspiration to put on the stage some of the rural characters whom he had known in Swanzey, and he wrote a short play called *Joshua Whitcomb*. This was successful and it was several years later made into a longer play in three acts, called *The Old Homestead*. In the rôle of Joshua Whitcomb Mr. Thompson appeared in this play until shortly before his death. He made a large fortune, for the play was popular in all parts of the country. He played long engagements in the large cities and toured the country year after year. He last appeared in the part in the winter of 1910.

Country	Year	Raw cotton (equiv- alent 500- pound bales)	Value of cotton manufactures			
			Total	Cloth	Yarn and thread	All other
Imports						
			Dollars	Dollars	Dollars	Dollars
Austria-Hungary	1909	897,268	12,449,783	1,883,637	7,291,354	3,274,792
Belgium	1909	577,364	49,209,711	12,477,752	9,774,000	26,957,959
Bulgaria	1909	5,420	5,384,428	2,612,131	2,342,814	429,483
Denmark	1907	38,720	7,981,040	5,499,360	1,155,080	1,326,600
France	1910	1,404,258	14,764,500	2,470,786	3,021,608	9,272,106
Germany	1910	1,881,365	44,125,914	10,526,978	24,292,422	9,306,514
Greece	1909	1,546	3,410,746	3,248,820	50,521	111,405
Italy	1909	839,096	7,250,834	3,984,271	924,636	2,341,927
Netherlands	1909	369,211	27,637,960	9,288,926	16,289,727	2,059,307
Norway	1909	16,680	3,985,855	432,578	815,390	2,737,887
Portugal	1909	64,643	2,245,069	1,969,108	276,110	999,851
Rumania	1909	4,211	6,963,668	2,570,695	3,107,120	1,285,853
Russia	1909	811,255	14,174,430	7,216,767	4,336,592	2,621,071
Servia	1909	409	2,849,257	1,407,857	1,276,333	165,067
Spain	1909	310,617	2,639,957	786,157	391,730	1,462,070
Sweden	1909	93,328	4,732,677	2,313,678	1,303,531	1,115,468
Switzerland	1909	164,816	16,138,150	7,046,404	5,160,148	3,931,598
United Kingdom	1910	3,945,482	52,921,378	13,115,286	1,941,500	37,864,592
Canada	1911	2,136,167	19,763,590	10,525,401	1,009,192	8,228,997
Cuba	1909	2,165	7,944,941	6,431,160	312,941	1,200,840
Mexico	1910	36,097	5,389,825	2,817,346	1,194,413	1,378,066
United States	1911	231,191	64,056,473	8,801,004	4,218,214	51,037,255
Argentina	1909	1,303	31,662,515	24,656,139	2,034,149	4,972,227
Brazil	1909	2,211	15,032,953	8,669,100	2,553,458	3,810,395
Chile	1909	797	12,175,287	5,884,606	1,341,247	4,949,434
Peru	1909	.....	2,571,824	2,008,497	168,332	394,995
China	1910	54,911	85,271,726	41,642,635	40,997,539	2,631,552
Japan	1910	1,275,826	7,245,013	6,718,636	379,255	147,122
Korea	1909	882	3,949,294	2,898,379	992,612	58,303
Siam	1909	760	4,192,756	1,928,141	505,152	1,759,463
British India	1910	21,871	127,782,529	109,984,245	11,738,168	6,060,116
French Indo-China	1908	15,487	9,741,124	5,191,533	4,427,546	122,045
Dutch East Indies	1909	.....	10,641,261	5,376,749	1,742,185	3,522,327
Philippine Islands	1909	1,747	7,094,276	4,796,444	1,041,976	1,255,856
Australia	1909	1,929	30,464,672	15,872,915	1,819,200	12,772,557
New Zealand	1909	1,210	6,298,924	2,696,919	168,165	2,433,840
Egypt	1909	307	16,796,958	15,060,164	1,232,719	504,075
Algeria	1909	508	10,623,144	9,253,630	235,922	1,133,592
Tunis	1910	.....	2,255,350	1,925,520	134,666	196,164
Other French Africa	1908	.....	8,993,652	8,218,811	354,466	420,375
British South Africa	1909	.....	10,865,631	7,660,330	(s)	3,205,401
Other British Africa	1909	.....	13,392,635	7,817,267	(s)	5,575,368
German Africa	1909	.....	3,381,738	2,794,523	76,667	510,548
Exports:						
Austria-Hungary	1909	50,189	13,257,962	7,477,902	2,174,983	3,605,077
Belgium	1909	280,969	54,004,530	14,428,685	9,492,935	30,082,910
France	1910	1,213,198	63,768,744	29,323,262	2,755,075	31,690,407
Germany	1910	220,873	103,466,692	37,974,328	13,035,022	52,457,342
Italy	1909	39,671	25,646,333	19,063,045	3,912,236	2,671,052
Netherlands	1909	129,054	16,116,466	9,786,029	2,280,063	4,050,374
Russia	1909	27,436	10,689,328	10,546,875	142,453	.....
Switzerland	1909	62,266	52,967,250	11,608,150	5,582,762	35,776,338
United Kingdom	1910	512,202	515,222,235	382,922,685	85,312,684	46,986,866
United States	1911	8,067,882	40,851,918	24,387,099	606,557	15,858,262
British India	1910	2,012,738	48,478,362	14,634,644	33,359,930	483,788
Japan	1910	246	38,446,485	10,190,342	22,633,425	5,622,718

1 For the year 1909. 2 For the year 1910. 3 Included in "all other."

THOMPSON, HENRY. A son-in-law of John Brown, died February 8, 1911. He was born in 1822. In 1850 he married Ruth Brown, the daughter of John Brown, in North Elba, N. Y. At this time the sons of John Brown had moved to Kansas, and here Thompson and his wife joined them in 1854. He took part in the attacks of his father-in-law on the slaveholders in Kansas, and in the "Battle of Black Jack," in which Brown with a band of twenty-five men worsted a greatly superior number of slaveholders, he was terribly wounded. With his brothers-in-law, Owen and Salmon Brown, he lay concealed for six weeks, suffering from his wounds and from malarial fever. John

Brown at last conveyed him out of Kansas to Iowa. Thompson returned with his wife to North Elba. Some years later he went to California with his wife, where he remained in Pasadena until the time of his death.

THOMSON, J. J. See PHYSICS.

THORNTON, JOHN RANDOLPH. United States senator (Democrat) from Louisiana. He was born in Iberville parish, La., in 1846. He entered the Louisiana State University, and in the beginning of 1863 he volunteered in the Confederate army, in which he served as a private until the close of the Civil War. Until 1887 he followed agriculture as an occupation, but after studying law received a license to

practice, and followed his profession until his election to the Senate. From 1878 to 1880 he served as judge of the Rapides parish. He was a member of the State constitutional convention of 1898, and was one of the three Louisiana commissioners to the conference on uniform laws for the United States. He was appointed on August 27, 1910, to the Senate to succeed S. D. McEnery, deceased, and was elected by the General Assembly in 1910 to fill the unexpired term of Senator McEnery. His term of office will expire in 1915.

THULIUM. See CHEMISTRY.

THUNDERER. See BATTLESHIPS.

THURINGEN. See BATTLESHIPS.

THURSTON, KATHERINE CECIL (MADDEN).

An English novelist, died September 6, 1911. She was born in Cork, Ireland, in 1879, and was educated privately. She married in 1901 Ernest Temple Thurston, who was also a writer. At the suggestion of her husband she began to write, and her first short story was accepted by a magazine. In 1903 she published *The Circle*, and in the following year made a great success with *The Masquerader*, which was published in England under the title, *John Chilcote, M. P.* This book ran through many editions and was dramatized by her husband. In 1906 she published *The Gamblers*, which was also a success. She secured a divorce from her husband in 1907. Among her other published novels are *The Fly on the Wheel*, and *Max*.

TIBET. A country in central Asia; a Chinese dependency. Area, 463,200 sq. miles; population, between three and six millions. Lhasa, the capital, has between fifteen and twenty thousand inhabitants. The total trade in 1910-11 was about £245,000. India receives from Tibet borax, salt, animals, wool, and musk, and contributes textiles, coral, and grain. The Dalai Lama, the government head, who returned to

After his graduation he was appointed second lieutenant of the mounted rifles. He was promoted to be first lieutenant of that branch of the service, and in 1861 was made captain in the Third Cavalry. He served throughout the Civil War, and in 1867 was promoted to be major of the Seventh Cavalry. He became lieutenant-colonel in 1883 and colonel of the Ninth Cavalry in 1889. In 1891 he was retired at his own request after forty years' service. He was advanced to the rank of brigadier-general. He saw service in the Civil War in New Mexico, and served also with Sherman's expedition to Chattanooga in 1863.

TIMBER IN NATIONAL FORESTS. See FORESTRY.

TIMOR. The largest island of the Lesser Sunda group, belonging partly to the Netherlands and partly to Portugal. The area is estimated at 12,593 sq. miles (7330 belonging to Portugal), and the population at 400,000 (200,000). Dili is the capital and chief port. Imports and exports (Portuguese Timor) in 1909 amounted to 394,170 and 312,105 milreis respectively. The budget (1909-10) balanced at 200,000 milreis. F. da Camada was the Portuguese and E. F. J. Loriaux the Dutch governor in 1911.

TIREYNS. See ARCHEOLOGY.

TITANIUM. See CHEMISTRY, INDUSTRIAL.

TOBACCO. The tobacco crop of 1911 in the United States was 2 per cent. under the five-year average in amount and 5.3 per cent. under in value. The year's crop is estimated at 905,109,000 pounds, and is given a farm value of \$85,210,387. The acreage and production (in pounds) in 1911, compared with 1910, and the price (in cents) per pound in 1911, are given in the following table for the principal States growing the crop, as reported by the United States Department of Agriculture:

	Acreage		Production		Farm value Dec. 1		Cents per lb.
	1911	1910	1911	1910	1911	1910	
Massachusetts ..	5,600	5,500	9,240,000	9,515,000	\$1,848,000	\$1,427,250	20.0
Connecticut	17,000	16,000	27,680,000	28,110,453	5,663,125	4,567,200	20.5
New York	3,800	4,000	5,054,000	5,000,000	525,616	425,000	10.4
Pennsylvania	46,000	43,000	65,500,000	46,164,800	6,205,409	5,998,500	9.5
Maryland	26,000	30,000	19,110,000	20,700,000	1,433,250	1,593,900	7.5
Virginia	160,000	192,000	128,000,000	148,760,000	12,288,000	13,478,400	9.8
West Virginia ..	15,000	25,000	11,250,000	16,000,000	900,000	1,648,000	8.0
North Carolina ..	140,000	200,000	99,400,000	120,000,000	11,530,400	12,720,000	11.6
South Carolina ..	13,000	25,000	11,000,000	15,750,000	1,388,016	1,354,500	12.6
Ohio	38,000	110,000	81,400,000	89,400,000	6,186,400	7,573,500	7.6
Indiana	22,000	30,000	20,020,000	26,400,000	1,661,560	2,508,000	7.8
Wisconsin	41,000	34,000	51,250,000	35,700,000	5,125,000	2,677,500	10.0
Missouri	6,000	8,000	4,800,000	8,400,000	676,000	1,008,000	12.0
Kentucky	345,000	525,000	303,600,000	425,250,000	23,377,200	36,996,750	7.7
Tennessee	77,000	110,000	62,370,000	83,600,000	5,301,460	7,022,400	8.5
All other States..	8,200	8,600	5,435,000	23,664,747	1,300,961	1,143,525	....
Total for U. S..	1,012,800	1,366,100	905,109,000	1,103,415,000	\$85,210,387	\$102,142,425	9.4

Lhasa in January, 1910, after having been driven out by British troops in 1904, again fled toward India when Chinese troops entered early in 1911. It is reported that the Wai Wu Pu (Chinese foreign office) has announced that the country is to be converted practically into a Chinese province. Pending the consummation of this policy, the Chinese resident at Lhasa is to conduct all Tibet's foreign affairs, and the Dalai Lama is no longer to exercise the power of concluding treaties. See EXPLORATION.

TILFORD, JOSEPH GREEN. An American soldier, died February 24, 1911. He was born at Georgetown, Ky., in 1829 and graduated from the United States Military Academy in 1861.

Figures are not available for the world's crop in 1910 or 1911. In 1909 it amounted to 2,587,466,000 pounds. Of this, the United States produced 949,257,000 pounds, Porto Rico 10,000,000, Canada 13,373,000 pounds, Cuba 59,323,000 pounds, South America 117,306,000 pounds (principally Brazil, Argentina, and Paraguay), European countries 644,157,000 pounds, Dutch East Indies 116,942,000 pounds, Japanese Empire 91,845,000 pounds, Philippines 40,258,000 pounds, and Africa 22,227,000 pounds. In 1909 the United States produced 36.5 per cent. of the world's crop, and for the past five years the average was 31 per cent. The exports from the United States comprised 42.3 per cent. of the

world's exports of tobacco. The amount in 1911 continued large, being valued at \$39,000,000, or one million more than the previous year.

The United States internal revenue receipts from tobacco in the year ended June 30, 1911, totaled \$67,005,950.56, an increase of \$8,887,493.53 over the previous year. In the calendar year 1910, 6,810,098,416 cigars were made weighing more than 3 pounds per thousand, and 1,118,135,635 weighing 3 pounds or under. This was an increase of 142,323,501 in the former class and of 75,112,076 in the latter over 1909. In the same year the number of cigarettes made weighing over 3 pounds a thousand was 19,374,077, and weighing 3 pounds or under was 8,644,335,407, an increase of nearly two billion in the latter case. Other tobacco manufactures were as follows: Plug 174,352,625 pounds, twist 14,580,022 pounds, fine cut 12,857,930 pounds, smoking tobacco 214,056,402 pounds, and snuff 31,445,178 pounds.

The United States Census has made a special report on tobacco manufactures in 1909. It shows that there were 15,822 establishments in the tobacco industry, as compared with 16,829 in 1904, a decrease of 6 per cent. In 1909 these establishments were capitalized at \$245,660,000, as against \$323,982,000 in 1904, a decrease of 24 per cent. The manufactured products in 1909 were valued at \$416,895,000, an increase of 26 per cent. over 1905.

A method devised for applying artificial heat in curing cigar tobaccos has been used successfully in the Connecticut Valley. The system not only does away with injury from pole sweat, but insures better and more uniform curing. See AMERICAN TOBACCO COMPANY.

TOGOLAND. A German protectorate, on the west coast of Africa, covering 33,700 sq. miles and having about a million inhabitants. Lome is the capital and chief port. Togoland imported goods in 1909 to the value of 11,235,000 marks, and exported home products amounting to 7,372,000. The budget balanced (1911-12) at 3,343,700 marks. There are 298 kilometers of railway, and 13 post offices. Dr. E. Brückner was governor in 1911.

TOLEDO. See OHIO.

TONGA ISLANDS, or FRIENDLY ISLANDS. A group of islands in the South Pacific; a British protectorate. Aggregate area, 390 sq. miles; population (1908), 22,734. Nukualofa, on the island of Tongatabu, is the capital. The imports and exports in 1909 amounted to £152,870 and £217,155 respectively. The revenue in 1909 was £40,456 and the expenditure £34,739. Jioaji Tubou II. is the native king; W. Telfer Campbell, British agent and consul in 1911.

TONGKING. A protectorate in French Indo-China, covering about 46,223 sq. miles and having an estimated population of 5,896,510. Hanoi, the capital, has 103,238 inhabitants. The imports in 1908 amounted to 59,910,100 francs and the exports to 60,468,800. The revenue and expenditure (1911 budget) balanced at 6,282,696 piasters. M. Simoni was acting resident-superior in 1911. See FRENCH INDO-CHINA.

TOTEMISM. See ANTHROPOLOGY.

TOWN PLANNING. See ARCHITECTURE.

TOWNSEND, CHARLES ELROY. United States senator (Republican) from Michigan. He was born in Concord, Mich., in 1856, and was educated in the common schools and in the University of Michigan, where he remained one

year. In 1895 he was admitted to the bar, and practiced his profession in the city of Jackson until his election to the Senate, with the exception of terms in the Fifty-eighth and Sixty-second congresses, inclusive. He was nominated for United States senator at the primaries on September 7, 1910, receiving a majority of 41,000 over Senator Burrows, who was elected by the State legislature June 18, 1911, receiving 115 votes to 14 for his Democratic opponent (see MICHIGAN). His term of service will expire in 1917.

TRACTION PLOW. See AGRICULTURE.

TRADE UNIONS. INTERNATIONAL SECRETARIAT. The seventh biennial conference of the International Secretariat was held at Budapest, Hungary, August 10-12, 1911. One of the interesting features of that conference was the rejection of a delegate sent from the United States by the Industrial Workers of the World. This was done under a rule admitting representation from only one body in each country, the American delegate being sent by the American Federation of Labor. The propositions presented at the 1909 conference, one of which favored the formation of an International Federation of Labor, and the other of which favored the organization of the International Congress of Labor, were sent back to all the national bodies for further discussion. The report of the secretary showed that the total membership of all trade unions affiliated with the organizations represented was 6,033,500, of whom nearly 2,000,000 were in Germany and 1,700,000 in the United States.

THE McNAMARA CASE. Following the destruction of the Los Angeles Times building in October, 1910, there were numerous assertions that the explosion was the work of trade-union leaders. This was vigorously denied by these leaders, some of whom demanded that the public suspend judgment until the facts in the case be determined. There followed then in May, 1911, the arrest of J. J. McNamara, secretary of the International Association of Bridge and Structural Iron Workers, and his brother, J. B. McNamara, as the principals in the case. The arrest of the McNamara brothers was brought about by Detective William J. Burns, who had been employed by the National Erectors' Association. Again there broke out in some portions of the press general denunciation of the violent methods of trade unions and again trade-union leaders as vigorously replied to charges which they deemed unfair. In St. Louis Mr. Gompers, president of the American Federation of Labor, demanded that the country should not pass judgment upon these particular men or upon the trade-union movement until further information was gathered. He expressed his conviction that the McNamaras were innocent, but declared his hope that the guilty ones would be brought to justice. Then came a consultation of the leaders of several international unions at Indianapolis at which was formed the McNamara ways and means committee. It was determined to prosecute those who had arrested J. J. McNamara and, as they asserted, spirited him from Indianapolis to Los Angeles. This suit was pending at the end of the year. It was also decided to raise a fund for the purpose of maintaining the defense of the accused men. This committee then issued circulars and pamphlets appealing to the international unions to contribute not less than twenty-five cents per member to the defense

fund. They also devised a McNamara button for Labor Day, selling at five cents; and a McNamara stamp selling at one cent. These were designed not only to raise money, but also to enlist public attention. The money contributed was under the exclusive control of the president and secretary of the federation. The total amount of money raised, as stated by Secretary Morrison, was \$200,000. As this was raised it was turned over to the attorney, Clarence S. Darrow, to be expended as he deemed wise. No detailed account of the manner of expenditure had been given up to the close of the year, but such a statement was promised. It was asserted by Detective Burns that a much larger fund than reported was raised.

In making this appeal for funds the leaders repeatedly laid great stress upon the assertion of J. J. McNamara to Mr. Gompers that he was innocent, and that the trade-union world could rely upon the soundness of his case. Indeed there was a very considerable belief on the part of the public that the accused men were not guilty. The well-known bitter hostility of the *Times* to trade unions in general, and the manner in which J. J. McNamara was arrested while in council with other leaders in the International Bridge and Structural Iron Workers' Union, had become a cause of great controversy and laid the basis for the charge by trade-union leaders that the whole affair was a "frame up" by Mr. Burns. On the other hand, in the minds of many, the quality of the circumstantial evidence, the general efficiency and integrity of Detective Burns, the fact that 113 dynamitings of jobs done by members of the National Erectors' Association had been perpetrated since that association declared in favor of the open shop, the confession of Ortie McManigal that he had taken part in a score of these dynamitings as the agent of J. J. McNamara, created great probability of guilt. The course of the union leaders in calling for a defense fund was looked upon by many persons both within and without trade-union circles as a prejudgment of the case; moreover, the enlistment of the support of a greater part of the trade-union world in the defense of the accused men discredited the trade-union movement as a whole. Here and there unions stood out against the demand for contributions on the ground that insufficient facts for judging the situation were available. It was held by these protestants that if guilty the defendants should be punished, and the ranks of union labor rid of such dangerous leaders. But not only did the unions raise a defense fund, but many of their publications encouraged the belief that the whole matter was a conspiracy against organized labor.

When, therefore, the counsel for the defense concluded that the case against them "left no loop-hole" and J. B. McNamara pleaded guilty to the *Times* disaster and his brother to the dynamiting of the Llewellyn Iron Works, the entire country and especially the trade-union part of it was much astonished. Considerable discredit at once attached to the trade-union leaders and that portion of the trade-union press that had prejudged the case and had sought to confuse the issue. Mr. Gompers seemed especially overcome by the confession, but lost no time in asserting that he had been grossly deceived and that being guilty the McNamaras should suffer their due punishment. This statement was, however, almost immediately followed

by the assertion by Detective Burns that Mr. Gompers had known for months that the McNamaras were guilty, and that Mr. Gompers himself had attended a conference at Detroit at which plans were laid for the dynamiting of five structures. These charges in turn were vigorously denied by Mr. Gompers. Moreover, it was brought out that the books of the Iron Workers' Union showed that Secretary McNamara had been authorized to spend \$1000 per month "for organizing purposes"; no items were made to show the manner of expenditure. It was charged that this money was used to pay J. B. McNamara and Ortie McManigal for the dynamitings. These suggestions of implication of union leaders in such affairs raised much discussion as to the extent to which trade-union leaders in general would sanction the use of dynamite in trade controversies. The final result was an inevitable withdrawal of some public esteem from the trade-union movement as a whole. The prompt and vigorous revulsion in trade-union circles, however, did much to restore public confidence in the general attitude of the rank and file of trade unionists toward the use of violent and destructive methods.

Following the confession the council of the American Federation of Labor, constituting the McNamara ways and means committee, issued a statement in which was set forth the manner in which they had been led to believe in the innocence of the McNamaras. They then went on to declare that "violence, brutality, destruction of life and property are foreign to the aims and methods of organized labor in America." The statement declared the McNamaras to be traitors to the cause of labor, expressed satisfaction with their conviction and punishment, and contended that organized labor should not be held implicated in any way in such methods. They welcomed any investigation.

On the whole this experience was the most impressive and trying which trade unions have experienced in this country in many years. It forced the entire movement to face the question of how far they should sanction the use of strong-arm methods and secret policies for achieving their ends. While, of course, there were some leaders and some trade-union members who would favor the use of destructive and fanatical methods, it was made sufficiently clear that the vast majority of trade-union leaders and members would not sanction such leadership or such methods. The final effect, therefore, upon the public estimate of trade unionism was not so serious as at first seemed likely. It was an almost universal opinion that the trade unions must "clean house," that they must rid themselves of dangerous leaders practicing un-American methods. One outcome of the entire matter was a powerful stimulus to the furtherance of conciliatory methods. See CALIFORNIA, *Politics and Government*.

FEDERAL COMMISSION ON INDUSTRIAL RELATIONS. On December 30, 1911, was presented to President Taft a petition for the appointment of a commission to inquire into industrial relations in the United States. This was signed by leading social workers and economists of the country and also by a few leading business men. This petition was a direct outgrowth of the McNamara case and the evidence there brought to light of the use of violent and destructive methods in the prosecution of trade disputes. The petition called attention to the fact that the

use of force with dynamite, intimidation, spying, evictions, and other unjust methods were too commonly practiced in the contests between labor and employers. It also called attention to the fact that the courts have been slow to adjust judicial decisions to new industrial conditions, but have been very ready to facilitate the use of injunctions, of militia, and other repressive measures in the support of employers. It then called for a federal commission of great scientific competence and with abundant power and resources. This commission should investigate the conditions of labor in the structural iron trade; it should inquire into breakdowns of the machinery for the settlement of trade wars; it should investigate the economic and social cost of strikes; it should review the record of relations between trade unions and associations of employers; it should study and report on the activities of federal and State bureaus of labor; and it should inquire into the newer methods of arbitration and conciliation and minimum-wage boards. The President was reported to have received the petition with interest and favor and the appointment of such a commission was deemed probable.

GREAT BRITAIN. *Sequel of the Osborne Decision.* Ever since the decision of the House of Lords in December, 1909, sustaining a judicial decision in the case of Osborne vs. The Amalgamated Society of Railway Service, in which the trade union was declared incompetent to carry on political activities by the use of trade-union funds, efforts have been made by various unions to secure parliamentary enactment restoring to them their lost privilege. Not only were the unions supporting some forty parliamentary representatives, but they were also engaging in local political activities. They demanded a law authorizing them to pay legislative representatives and to defray the expenses of other political activities out of trade-union funds. The government at first made a counter proposition that parliamentary representatives be paid by the treasury, but this met with determined trade-union opposition. Meanwhile the unions instituted a system of voluntary contributions by their members for the purpose of paying their representatives and defraying the expenses of their political activities.

In a case decided about the first of May a court at London held that a voluntary levy for the election or support of labor representatives in Parliament or on local public bodies, which had been instituted by the Amalgamated Society of Engineers, was *ultra vires*. The court found that such a levy was only nominally voluntary, being in fact compulsory and therefore in violation of the principle laid down in the Osborne decision. The government had, early in the year, introduced the Trade Union's bill to overcome the defects of the Osborne decision. This bill would permit trade-union funds to be used for both local and national political purposes, but only on condition that a majority of the members of a union so voted, and on condition that the opposing minority members should not be required to make any contributions to the funds to be so used. That is, the funds to be used for political purposes would be raised by a special voluntary levy and no penalty could attach to those minority members who did not favor political action. The chief argument against this proposal, as expressed by Mr. Ramsley McDonald and other labor leaders, was that,

if the right of the unions to engage in political action be once recognized, then the minority ought not to have the privilege of withdrawing their support from the policy favored by the majority. In answer to this the government stated that while the union should have power to engage in political action, yet every member should be protected in the freedom of his political opinions. Another source of opposition was found in the idea expressed by the London court as above noted. The bill provided that any member who wished to be exempted from paying dues to the political fund must give formal notice in writing. Opponents held that this would make such a member a marked man and that through pressure of various sorts he would be practically compelled to fall in line with the policy of the majority of members.

The Labor party's bill on the same issue would give the trade unions unqualified right to use their funds for securing the election of representatives in Parliament or any other public bodies or for the purpose of maintaining or paying the expenses of such representatives.

Strikes. A very notable feature of the trade-union movement in Great Britain in 1911 was the great strike of the Transport Workers, including seamen and dockmen, accompanied by the strike of railway men. Nothing in recent years has shown so impressively the power and the solidarity of the workers in Great Britain. At least 100,000 railway men received an advance of twenty-five cents per week and 150,000 seamen and dockers received advances of from \$1 to \$2.50 per month. See **STRIKES**.

Conciliation. The great amount of labor unrest, together with the breaking down of the conciliation agreement in the railway world, led to the formation of an industrial council late in the year. (See **ARBITRATION AND CONCILIATION, INDUSTRIAL**.) While the attitude of the trade-union leaders in general was favorable to the perfection of the machinery for arbitration and conciliation, nevertheless there was some expression of unwillingness to surrender the strike privilege. While, of course, this new proposition did not deny the right to strike, it was considered by some a step in that direction. These held that the right to strike is essential to the power and effectiveness of the trade-union movement, and that every step in its restriction should be accompanied by fully compensatory representation of the unions on arbitration committees.

Organization. Following the great strikes of the summer, a wave of organization swept over the United Kingdom which not only increased the membership of most unions, but resulted in the creation of new unions. Women workers increased their organization; fishermen, previously unorganized, formed a union; laundry workers also took steps to organize; bartenders started a new union of one thousand members in London in September. Furthermore, a move was started for the publication of a daily trade-union paper. This was supported by a number of the stronger unions who promised to invest sums ranging from £5000 to £12,500 each in the undertaking. The title of the paper was to be the *Daily Citizen*, to be published probably in Manchester.

GERMANY. The strong position of the German trade unions has shown itself very clearly in the betterment of wages and shortening of hours,

in many cases without either strike or lockout. In 1910, 829,000 persons received wage increases and 346,000 reduction in hours, these being respectively the largest number in any single year. Most of those benefited were trade unionists. Between 1905 and 1910 about 400,000 members of the building trades unions received an average increase of 2.8 marks per week per person. This was mainly due to an extensive lockout in 1909-10. In the metal trades 125,000 persons received an advance of 1.4 marks per week per person. Similarly in the printing, the wood-working, the clothing and textile, the food and drink, transport, and retail trades many thousands received weekly advances of 1.5 marks to 2 marks in wages. Taking all of the trades together 53 per cent. of those receiving increased wages were neither on strike nor lockout, this percentage contrasting with 73 per cent. in 1909 and 88 per cent. in 1908. Of the total number of workers receiving wage increases in 1910, 48 per cent. were in the building trades and their increase amounted to 61 per cent. of the total increase in wages. The total number of wage earners who received a reduction of working hours in 1910 was 344,570, the reduction amounting to 756,594 hours per week. The greater proportion of these workers were in the building trades and the metal trades. The total number of persons benefited was greater than in any recent year, although the total reduction of hours was exceeded in 1906-7.

Membership and Finances. German trade unions have experienced a more rapid growth in recent years than those of any other principal country. The report of the General Commission of Trade Unions issued in November showed that the total membership in 1910 was 2,688,144. Of this number, 2,017,298, or about 80 per cent., belonged to unions affiliated with the general commission. The Christian Trade Union Federation reported 295,129 members and the Hirsch-Duncker Federation reported 122,579. There were in addition 253,146 members of independent unions; Roman Catholic and Protestant unions with 198,840 members; "patriotic" unions with 33,284 members; and "yellow" unions with 79,991 members. The last two groups are not trade unions in the strict sense of the word; they are labor unions composed very largely of strike breakers. The aggregate membership in 1910 was nearly three times as great as in 1901, the increase during the ten years having been continuous except for a slight recession in 1908.

The financial strength of the German trade unions has also become remarkable. The income in 1910 of the unions affiliated with the general commission was 64,372,190 marks; that of the Christian unions, 5,490,004 marks, and that of the Hirsch-Duncker, 2,926,693 marks. The total expenditures of the general commission unions was 57,928,566 marks; of the Christian unions, 4,916,270 marks; and of the Hirsch-Duncker unions 2,532,361 marks. Strike and lockout benefits amounting to 20,413,343 marks were paid by the general commission unions; 1,239,500 marks by the Christian unions; and 339,931 marks by the Hirsch-Duncker unions. The funds on hand held by the general commission unions amounted to 53,000,000 marks at the close of 1910, as compared with 6,000,000 marks for the Christian unions and 2,000,000 marks for the Hirsch-Duncker unions. Among the other benefits paid by the unions affiliated

with the general commission were the following: Out-of-work, 6,076,000 marks; traveling, 1,016,000 m.; removal, 316,000 m.; sick, 9,029,000 m.; invalidity, 505,000 m.; distress, 540,000 m.; legal assistance, 330,000 m.; death, 884,000 m.

The metal-working and ship-building trades have the greatest number of trade-union members, there being 430,744 workers in those lines in the General Commission Trade unions, 28,627 in the Christian unions, and 40,584 in the Hirsch-Duncker unions. The building trades rank second in trade-union membership, having a total of 403,948. Then come the transport and commerce trades, wood-working, and mining, each with 200,000 or more trade unionists.

Secretariats. A typical feature of German trade-union development is the maintenance of workmen's secretariats or secretaries. These secretaries are usually trade-union leaders who have qualified themselves by the study of labor laws and conditions to serve in the position of legal adviser to workmen. They receive fixed salaries and settle many union complaints. In 1911 there were 113 of these secretaries, besides 203 information agencies conducted by local trade-union bodies. The character of the cases dealt with by these secretaries is shown by the following statistics: Out of 610,897 cases handled in 1910, 30 per cent. related to workmen's insurance; 29 per cent. to civil law; 14 per cent. to labor and service contracts; 15 per cent. to local and central government regulations. Other cases dealt with the penal law and the labor movement. The information agencies dealt with 46,346 on the same subjects.

TRAINING SCHOOLS LIBRARY. See LIBRARY PROGRESS.

TRANSATLANTIC STEAMSHIP POOL. See TRUSTS.

TRANSFORMERS. See DYNAMO-ELECTRIC MACHINERY.

TRANSIT, SUBWAY. See ELECTRIC RAILWAYS.

TRANSMISSION OF ELECTRIC POWER. New developments of importance in this field were conspicuously lacking in America in 1911. The new projects undertaken were of a minor character and the improvements in apparatus related largely to matters of detail. The attention of investigators has been diverted largely from the field of insulation and lightning protection to that of line losses through corona discharge. Thorough study has now reduced this complex phenomenon to a working basis of practical use to the designer. The influence of this factor on the future limitations of high voltage are more fully understood. The tying of many small powers into network systems continues to increase. There has developed a marked tendency to the use of water wheels of very large power. The Pacific Coast Power Company has installed Francis turbines of 20,400-horsepower. At the most favorable load the efficiency of these machines is reported to exceed 85 per cent. The growth of switching and transforming apparatus for outdoor installation is worthy of note. These types are now available for 110,000-volt lines and permit the connection of small and moderate loads to such lines without the installation of a substation.

European nations have been much more active than American in new developments. In Austria plans have been matured for the development of 200,000 horsepower to Paris from a site on the Danube. A project was developed to furnish

200,000-horsepower to Paris from a site on the Rhone at a distance of more than 300 miles from the city. While the three-phase alternating-current system has been the most conspicuous in recent years, the advocates of the high-pressure direct-current system have not been idle. The Montiers-Lyons system in southern France is to be greatly increased by interconnection with new plants at Bridoire and Bozel. Each of the generators of the remodeled system is to produce a constant direct-current of 150 amperes at voltages ranging from 7200 to 18,250. The generators are connected in series when operating, changes of load being met by adding to or decreasing the number of machines in circuit and by field control of the separate units. At the receiving end the power is transformed through motor-generator sets, the motor elements of which are in series with the line. When the project is complete it will represent an aggregate of 28,000-horsepower with a maximum voltage of 127,000 volts when all units are operating.

There are many indications that long-distance transmission from steam and gas-engine plants located at the mines or at coke-oven plants will soon become an important factor. The development of boilers capable of supplying a 10,000 kw. turbine and of large gas engines of 6000-horsepower to be operated by coke-oven gas, which is now a waste by-product, point to the early practicability of such transmission plants.

TRANSVAAL, THE. A province of the Union of South Africa (q. v.). Capital of the Union and provincial capital, Pretoria.

AREA, POPULATION, ETC. Area (estimate), 110,426 sq. miles; population in 1904, 1,262,698; estimate in 1911, 1,676,611.

Pretoria had (1911) 48,609 inhabitants; Johannesburg, 237,220. Schools (1908), 624 primary (pupils, 44,451), 220 native (10,725). In secondary schools the pupils numbered 1891; in the normal college, 94.

INDUSTRIES. Stock-raising is the principal occupation of the agricultural population, though other branches of agriculture are engaged in. Livestock (1910): 125,951 horses, 899,673 cattle, 3,011,906 sheep, 167,879 hogs. Wheat (520,280 bu. in 1909), and tobacco (2,891,000 lbs.) are grown.

Persons employed in the mines (March, 1909), 229,015. No Chinese labor is now employed. The output from the mines is shown below:

	1907	1908	1909
Gold (fine oz.).....	6,450,740	7,056,266	7,299,413
Diamonds (kt.).....	2,062,855	2,022,687	1,877,486
Diamonds (£).....	2,268,075	1,549,815	1,176,680
Coal (tons).....	2,883,423	3,012,692	3,623,656
Coal (£).....	773,649	794,949	916,452
Tin (tons).....	1,305	1,426	2,642
Tin (£).....	57,371	100,907	220,456
Lime (tons).....	27,949	30,044	37,965
Lime (£).....	55,024	55,204	73,085
Copper (tons).....	1,260	1,144	1,940
Copper (£).....	43,867	31,898	52,075
Lead (tons).....	1,348	3,020	1,631
Lead (£).....	16,443	27,280	15,370

Value of total gold output 1884—June 30, 1910, £273,559,758. Value of base metals other than shown in table above (1909), £47,596.

COMMERCE, FINANCE, ETC. The imports and exports for the calendar year 1909 are stated at £19,643,615 and £34,128,956 respectively.

Principal imports (1909): Live animals, £1,802,701; machinery, £1,716,624; clothing, etc., £1,499,890; chemicals and dynamite, £1,371,929; cotton goods, £710,787; iron and steel

work, £687,618; wheat, flour, etc., £507,219; hardware, £495,006; sugar, £470,628; boots and shoes, £425,010. Exports: Gold, £30,660,886; diamonds, £1,238,926; wool, £309,922; hides, skins, etc., £185,207; horses and mules, £140,186; tobacco, £105,453; coal, £43,841. Great Britain supplied imports and received exports valued at £7,130,270 and £32,216,619 respectively; British possessions, £981,892 and £1,391,966; other countries, £3,859,552 and £105,440; balance, interchange of South African produce.

The revenue and expenditure for the year ended May 30, 1910, are given as £5,585,637 and £5,974,491 respectively.

Total length of railways in operation (1909), 2627½ miles; under construction, 64½. Telegraph lines, 10,287 miles; telephone wires, 28,615; post offices, 450. The province is governed by an administrator (1911, J. F. B. Rissik), aided by a legislative council and an executive committee.

TRAVEL, BOOKS OF. See **LITERATURE, ENGLISH AND AMERICAN.**

TREADWELL, GEORGE A. An American metallurgist and mining promoter, died November 11, 1911. He was born in Maine in 1836, and studied geology and metallurgy at Yale College. In 1878 he became superintendent of the Vulture Mine in Arizona and in this capacity he built an eighty stamp mill, which was at that time the largest in the world. In 1884 he went to Europe, where he remained for three years lecturing in the Dexter School of Mines. He returned to Arizona in 1887, and there discovered the copper deposits in the Verde country. For many years he carried on litigation with William A. Clark to determine the ownership of stock in the United Verde Copper Company. In November, 1909, the Appellate Division of the Supreme Court of New York reversed a judgment obtained by him against Mr. Clark. He was an officer and director in many important mining companies in the United States and Alaska.

TREATIES. See **UNITED STATES.**

TREATIES, FRANCO-GERMAN. See **MOROCCO, History.**

TRENGGANU. One of the tracts ceded by Siam to Great Britain March 10, 1909. It has an area of about 6000 sq. miles and a population of about 50,000. Capital, Trengganu. The inhabitants are mainly Mohammedans. Sultan (1911), Zainulab-din ibni Marhum Ahmad. British agent, W. D. Scott.

TREVELYAN, G. M. See **LITERATURE, ENGLISH AND AMERICAN, General Biography.**

TRILLEY, JOSEPH. A rear-admiral, retired, of the United States navy, died March 6, 1911. He was born in Ireland in 1838, and entered the naval service as third assistant engineer in 1860. He served throughout the Civil War, rising to the rank of first assistant engineer. In 1871 he was appointed chief engineer. He served at various stations and on various vessels, and attained the rank of commander in 1892. His last active service was at the navy yard at Mare Island, California. In 1892 he attained the rank of captain, and was retired in 1899 with the rank of rear-admiral.

TRINIDAD AND TOBAGO. Islands of the West Indies; a British colony. Trinidad covers 1754 sq. miles, Tobago 114. Total population (census of 1911), 330,093 (in 1901, 273,898). Port of Spain, the capital, has 60,000

nhabitants. The imports amounted in 1910 to \$3,343,011 and the exports to \$3,467,588. The asphalt export was 146,748 tons (£163,815), and the cacao 57,858,640 lbs. Miles of railway in operation, 89. The administration is in the hands of a governor (in 1911, Sir G. R. Le Hunte), aided by executive and legislative councils. See VOLCANOES.

TRINITY COLLEGE. An institution of higher learning at Hartford, Conn., founded in 1823. The number of students enrolled in the various departments of the college in 1910-11 was 232. The faculty numbered 22. There were no notable changes in the faculty during the year. The amount of productive funds of the college was \$1,185,341. The income is about \$70,000 annually. The library contains about 10,000 volumes. The president is F. S. Luther.

TRIPOLI. A vilayet of the Ottoman empire, on the Mediterranean coast of Africa, bounded on the west by Tunis and southern Algeria, on the east by Egypt, on the southeast and south by the Sahara. The area is estimated at 405,400 sq. miles and the population, mostly Berbers, at about one million (inclusive of Bengazi, or Cyrenalca). The capital is the town of Tripoli, with 40,000 inhabitants; capital of Bengazi, Bengazi, with 25,000.

There are no rivers and the rainfall is frequently insufficient; so that a good harvest can be counted on only once in three or four years. Besides metals, manufactured articles, tea, beads, wines and spirits, etc., for home consumption, the imports include articles for barter in Wadai, Bornu, and western Sudan; with which countries Tripoli maintains a caravan trade, which has, however, greatly declined in recent years. The products and exports are ostrich feathers, ivory, skins, sponges, hides, sparto, and domestic animals. The declared imports amounted in 1909 to £437,640 (£467,200 in 1908), and the exports to £172,800 (£169,400 in 1908). The revenue is derived mainly from a poll tax levied according to the wealth of the individual, and from tithes.

The vilayet was administered previous to the Italian occupation in October, 1911, by Bekir Sami Bey as governor-general or *vahi*. Bengazi (or Barca, or Cyrenalca) had a *mutessarif* (1911, Murad Fuad Bey). The city of Tripoli was occupied by Italian forces at 4 P. M. on Thursday, October 5, 1911; Tobruk fell October 6, Derna October 18, Bengazi October 20, Homs October 21. A decree was published in Rome November 5 proclaiming "Tripolitania and Cyrenalca under the full sovereignty of the kingdom of Italy." At the end of the year Italian troops occupied all the coast towns; but the desert, trackless and waterless, was still to conquer. See TURCO-ITALIAN WAR.

TRIPP, BARTLETT. An American public official, former minister to Austria-Hungary, died December 8, 1911. He was born at Harmony, Me., in 1842, and was for three years a student at Waterville College, now Colby University. In his senior year, however, he removed to California. For the four years succeeding he worked as a surveyor, taught school, and studied law in California, Nevada, and Utah. In 1867 he graduated from the Albany Law School. After being admitted to the bar he practiced law for two years at Augusta, Me. He then removed to Yankton, S. D. In 1878 he was a candidate for Congress and was defeated. He

was a delegate in 1883 to the first constitutional convention for the Territory of South Dakota. In 1885 he was appointed chief justice of the Supreme Court of Dakota by President Cleveland, which position he held until the division of the Territory four years later. In 1893 he was appointed United States minister to Austria-Hungary and served in this office for four years. After the expiration of his term he became, in 1899, chairman of the Samoan commission to settle questions among the United States, England, and Germany. From 1902 to the time of his death he was lecturer on constitutional law at the University of South Dakota.

TROIS FRERES, or EAGLE ISLANDS. A dependency of Mauritius (q. v.).

TROPICAL DISEASES. Tetanus is noted in the Philippine Islands as the result of a cure called "fuentq" practiced by the arbolarios or unlicensed physicians on persons suffering from chronic diseases, such as beriberi. It is a common belief among certain classes of people, especially in the provinces, that they are relieved by opening a "fuente" on either the arm, thigh, or leg. A mixture of lime and Chinese soap in the proportion of two to one is made into a "bolita" (pill), the diameter of which varies from .5 to 1 cm. This pill is then placed on the arm or leg and is held in position by a bandage until a blister forms. The next day another "bolita" of the same size, made of garlic, is placed on the surface of the previously opened blister, the wound dressed as before, and the dressing is not removed until pus is produced and a cavity formed. A cavity once created, another "bolita" made of Chinese wax or betel-nut is introduced and covered with a piece of Chinese blotting paper. A hole is made in the middle of the paper and a piece of banana leaf is put on next and loosely bandaged. By pressure the hole becomes so deep that the pill soon has a cavity large enough to hold it. Each part of the dressing has its own purpose. The pill is to maintain pressure on the cavity and prevent healing; the blotting paper absorbs any secretion; the banana leaf protects the wound from becoming wet, and the bandage keeps out the air. The wound is washed morning and afternoon with warm guava water or ordinary tepid water and the dressing changed. It is supposed that the secretion removes the impurity of the blood which has caused the sickness. If the "fuente" fails to cause secretion, the sickness is said to be incurable. If the patient gets well, the "bolita" or "pelotilla" is removed and the wound treated as before until it heals. It is believed that many cases of tetanus originate in this way.

The reports of the Department of Sanitation of the Isthmian Canal Commission indicates that the canal zone, formerly infested by disease and pestilence, is as safe a place as any on earth for a white man or woman to live in. During the month of March there were only 43 deaths from all causes among 47,935 employees. Sixteen of these deaths were from violence, and 27 were from disease. Of these victims, 23 were colored, and 4 were Italian or Spanish. Not a single white American man died of disease. Still more striking are the figures for white employees and their families from the United States. In this class there are at present 10,299 persons in the canal zone. Out of

this number, there were only 10 deaths during the month. Of these, 3 white employees from the United States, out of a total number of 6017, died as the result of accident—none died as the result of disease. Of 7 white employees who died in October, only one was an American—a man aged 44, who died of chronic nephritis. The only other death among white Americans in the canal zone during this month was that of a child who died of peritonitis. Nearly 12,000 white men, women, and children from the United States (11,839) are living comfortably and safely in what was a few years ago a hot-bed of disease, and the annual death rate among them, as indicated by the deaths for October, was 2.03 per thousand.

VERRUCA PERUANA, syn. *verruca peruviana* and *fièvre de la Oroya*, or Carrion's fever, derives its eponymic appellation from Daniel Carrion, a young Peruvian, who lost his life in attempting to determine the infective nature of the disease. The malady has a particular interest for Americans outside of those who work in Peru, because many become infected in Peru and return to the United States, bringing the infection with them. *Verruca peruana* is a very serious and frequently fatal disorder, characterized by fever of irregular type and severe anemia, followed by a wart-like eruption of the skin, or mucous or serous membranes. The mortality was so great during the construction of the Oroya Railroad, which extends from Lima to the Cerro de Pasco mines, that one of the large bridges crossing the river is known generally as Verruca Bridge. Peruvian physicians believe that only by sleeping in an infected district or passing through it at night can the disease be contracted, and it is generally held that it is transmitted by the bite of an insect. Formerly the disease had a much wider distribution than now. It is encountered in certain narrow valleys of the Peruvian Andes between 8 and 13° south latitude, and at altitudes of from 1000 to 12,000 feet. It is distributed along narrow tributaries, which drain into rivers flowing into the Pacific Ocean. The disease is never contracted in the lower coastal plain but always in the valleys at the higher altitudes, not less than 16 to 36 English miles from the sea. It does not cross the divide, and is unknown on the eastern face of the Andes. Two varieties of the fever are recognized—a malignant form known as Oroya fever, which is characterized by irregular temperature, blood changes like those of severe anemia, vertigo, restlessness and air hunger, followed by a warty eruption, and a high mortality; and the benign form, in which the symptoms are more undefined, and the patients usually follow their vocations; the anemia and fever are moderate and the eruption is of a nodular type and lasts longer than in the malignant forms, but disappears by involution or ulceration in from four to six months. The mortality of the malignant form is from 85 to 90 per cent. There is no natural immunity to the disease of any kind—race, age, or sex. Infants have been born vocations, the anemia and fever are moderate infected with the disease. See also **BERIBERI**, **MALTA FEVER**, **PELLAGRA**, **PLAGUE**, and **SLEEPING SICKNESS**.

TROTTING. See **RACING**.

TRUST COMPANIES. See **LOAN AND TRUST COMPANIES**.

TRUSTS. One of the foremost public questions of the year was the trust problem. The year opened with the argument of the Standard Oil case before the Supreme Court of the United States; this was followed by the Tobacco Trust case; then in May came the momentous decisions in those suits. There followed reports by the Commissioner of Corporations on the Steel and Tobacco combinations, hearings before House committees authorized to investigate the Steel and Sugar trusts, and before the Senate committee on interstate commerce, authorized to inquire into the whole subject. Meanwhile there were many prosecutions being carried on by national and State departments of justice. The public press was devoting much space to the discussion of the problem; President Taft discussed it in many speeches and devoted a message to Congress to it in December; Mr. George W. Perkins, formerly with J. P. Morgan & Co., in various addresses and articles, Mr. Roosevelt through the *Outlook*, Congressman Littleton of New York, in a notable address at Pittsburgh, and many others were advancing the principle of regulation as superior to attempted destruction; and the National Civic Federation was making an extensive inquiry into opinion among all classes of citizens.

In addition to the matter below see **STANDARD OIL, AMERICAN TOBACCO COMPANY, UNITED STATES STEEL CORPORATION**.

RULE OF REASON. The most discussed parts of the decisions of the Supreme Court in the Standard Oil and Tobacco cases were those in which the court stated and reiterated its conviction that this law should be given a reasonable interpretation. This was looked upon by the country as virtually a new interpretation of the law. Justice Harlan, though agreeing with the other members of the court in denouncing the combinations, most vigorously dissented from the view expressed by the "rule of reason." He held that this really amounted to an amendment to the law, whereby it was made to apply only to unreasonable combinations in restraint of trade. In a separate opinion of 15 pages he most bitterly denounced that practice of American courts whereby they make new laws by reading into old ones unexpected interpretations. He even declared that this practice of judge-made law "would in the long run prove disastrous for our political system," and would "in the end prove most dangerous to all." With this view a large proportion of the American public strongly sympathized. Very often has public opinion been called upon to condemn the practice of amending constitutions and legislative enactments by means of judicial construction.

It was undoubtedly true that this interpretation of the law was unexpected. Mr. Justice Lacombe, in the majority opinion of the Circuit Court on the Tobacco case in 1908, had held that the law applied to every contract, however small. He said, "Two individuals who have been driving rival express wagons between villages in two contiguous States who enter into a combination to join forces and form a single line have restrained existing competition." Mr. Peckham, in the *Trans-Missouri Freight Association* and *Joint Traffic Association* cases of 1897 and 1898 said, in speaking of the meaning of the act: "The plain and ordinary meaning of such language is not limited to that kind of control

alone, which is in *unreasonable* restraint of trade, but all contracts are included in such language, and no exception or limitation can be added without placing in the act that which has been omitted by Congress." On the other hand, the late Justice Brewer, in the Northern Securities case, said: "Congress did not intend to reach and destroy those minor contracts in partial restraint of trade which the long course of decisions at common law has affirmed were reasonable and ought to be upheld. The purpose rather was to place a statutory prohibition upon those contracts which were in direct restraint of trade, unreasonable, and against public policy." Indeed, even in the Joint Traffic case, already mentioned, this clause is found: "The act of Congress must have a reasonable construction, or else there would scarcely be an agreement or contract among business men that could not be said to have, indirectly or remotely, some bearing on interstate commerce, and possibly to restrain it." It thus appeared that the view of reasonableness in interpretation taken by the court in these decisions was at least foreshadowed in earlier cases. The Chief Justice in the Tobacco Trust decision strongly reinforced the view taken in the Standard Oil case. He held that the application of the rule of reason to the interpretation of the words "restraint of trade" would make it include those contracts or agreements or combinations included by this same phrase at common law and in the law of the country at the time of the adoption of the anti-trust act; that is, it would include only such acts or contracts as are prejudicial to public interests by unduly restraining competition or injuriously restraining trade. The Chief Justice went so far as to say, "Indeed, the necessity for not departing in this case from the standard of the rule of reason which is universal in its application is so plainly required in order to give effect to the remedial purposes which the act under consideration contemplates, and to prevent that act from destroying all liberty of contract and all substantial right to trade, and thus causing the act to be at war with itself by annihilating the fundamental right of freedom to trade which, on the very face of the act, it was enacted to preserve." He held that this interpretation would prove more effective and more comprehensive than strict adherence to the letter of the law.

As to the effect of such interpretation opinion was hopelessly divided. Some pointed out that to apply the law rigorously to all restraints would make the statute ridiculous, whereas to apply it only to those restraints which the common law condemns as unreasonable because they interfere with business and promote monopoly and are, therefore, contrary to sound public policy, makes the law rational and useful in promoting the sound industrial development of the country. On the contrary, a considerable body of opinion held that the practical insertion of the word "unreasonable" in the law made it ineffective. Some years ago, when it was proposed to insert this word in the Sherman law the Senate judiciary committee unanimously disapproved on the ground that "it would render the act indefinite and uncertain, and hence, to that extent, utterly nugatory and void." Similarly President Taft, in his special message of January, 1910, had said that the proposal to make the law apply only to unreasonable re-

straints of trade "would put into the hands of the court a power impossible to exercise on any consistent principles which will insure the uniformity of decision essential to just judgment. It is to thrust upon the courts a burden that they have no precedents to enable them to carry, and to give them a power approaching the arbitrary, the abuse of which might involve our whole judicial system in disaster."

The immediate effect of the Supreme Court decisions was a feeling of optimism shown by a pronounced upward movement on the stock exchanges. Nevertheless, it soon became evident that the business men of the country were not entirely satisfied with the interpretation of the Sherman law. They felt that this very "rule of reason" made the interpretation of the act in any particular case uncertain. This feeling of uncertainty as to the legality of pools and minor trade agreements was so general that no real revival of business followed these decisions. It was felt that either a considerable number of decisions under this new view would be necessary to define the limits of reasonable restraints of competition or that Congress must at once take up the matter of the most feasible plan for regulating combinations of capital.

PROPOSED SOLUTIONS OF THE TRUST PROBLEM. Both before and after the decisions of the Supreme Court under the Sherman act numerous proposals were made for the solution of the trust problem. These ranged all the way from a proposal to insert in the Sherman law a clause making it applicable to all restraints, whether reasonable or unreasonable, to that advanced by Judge Gary before the Stanley committee (See **UNITED STATES STEEL CORPORATION**) whereby a governmental authority would be established having power even to fix prices. Two things seemed manifest: one, that the violent hostility to big business, so evident a few years ago, was subsiding, though in the West some strong opposition was still shown; the other, that greater favor for the idea of regulating, rather than destroying, the trusts was being more and more widely accepted.

The various attitudes toward the trust problem may be classified under three headings. In the first place there is the *laissez-faire* view. This represents the time-honored view of the individualistic philosophy, which maintains that in a condition of free competition, of struggle of each against all, progress will be most rapid and general welfare will be greatest. This view, however, has gradually lost ground in every aspect of the relation of government to business, and is now held by only a small and dwindling minority as regards the corporation problem.

In the second place, there are those who favor the annihilation of trusts. This is the idea expressed by that interpretation of the Sherman act which makes it destructive of all combination; it is the plan favored by Mr. William J. Bryan and by Senator Cummins of Iowa. They would crush every tendency toward the elimination of competition, by limiting the amount of business, or by limiting the proportion of a business which any one concern may have; they would even limit the amount of capital. One of the chief objections to this plan is that it makes mere size criminal. Another is that it is reactionary in character, in that it fails to recognize the world-wide tendency toward combination and consolidation, of which it

overlooks the undoubted economic advantages. It would push industry back to "competition and a free market." This was the most widely accepted view in this country only a few years ago, and it is still widely favored in States west of the Mississippi and on the Pacific coast.

In the third place, there is the plan of regulation. This proposal first points out the advantages of large scale production and the economies due to combination. It finds that there is a world-wide tendency toward large business units on account of these advantages. It would preserve these business economies, but take measures to stamp out the evils inherent in monopoly power. This means that the government must so supervise monopolistic business as to force it to share its advantages with the consuming public. This may be done in large part by publicity secured by means of a well-organized corps of inspectors, as in the case of banks. Or, it may require the organization of a commission with much discretionary power, even to the extent of power to fix prices, as in the case of the public service commissions or the Interstate Commerce Commission. This latter view in one form or another was that to which President Taft showed increasing favor; it was advocated by ex-President Roosevelt in the *Outlook* and elsewhere; it was favored by Chairman Gary, of the Steel Corporation, and it was on numerous occasions effectively presented by Mr. George W. Perkins; it was widely favored by the press, by business men, and by economists.

There thus developed a divergence of view as to the advisability of retaining or amending the Sherman act. President Taft and Attorney-General Wickersham both felt the obligation as public officials to enforce that act so long as it was the law of the land; and after the Supreme Court decisions of May they thought the act should stand unmodified as expressing with sufficient clearness the negative rules for the guidance of business promoters. This view was not widely shared. Secretary Nagel, of the cabinet, said that organizers of a corporation could not ascertain whether they would be liable to prosecution or not; and Interstate Commerce Commissioner Prouty said that no lawyer could advise with certainty whether a given trade agreement was within or without the inhibition of the statute. In other words, the belief was well-nigh universal that business uncertainty would only be dispelled by the formulation of a positive set of rules or the organization of an administrative body to regulate the organization of large concerns. The President finally accepted this view. Whether these concerns should be merely licensed by the national authorities, or should incorporate directly under federal law, thus became, by the close of the year, subordinate to the question of forming an interstate trade commission. Similarly subordinate became the question of repeal of the Sherman act, for, its inadequacy being granted, its fate became dependent on the solution of the larger question of trust regulation by an administrative board.

PRESIDENT TAFT'S VIEW. After the decisions of the Supreme Court in the Standard Oil and Tobacco cases, President Taft expressed great satisfaction with them. He thought that they made the meaning of the Sherman law sufficiently clear, especially when taken in connection with other decisions. In view, however, of the great attention given to this problem in the country

during the summer and fall he decided to devote his entire annual message to the question of trust control. In this message he reviewed the judicial interpretations of the Sherman act, again explaining his conviction that the meaning of that law was sufficiently clear to enable business to reorganize, when necessary, without great disturbance. He expressed his disagreement with those who declared the disintegration of the oil and tobacco combinations to be a mere change of garments without any change in real control. He showed that the law, as interpreted, does not prohibit mere bigness, but rather the elimination of competition. He held that when a combination has the effect of suppressing competition, the promoters should not complain if the court holds that they intended to accomplish what they did accomplish, "for men do not do such things without having it clearly in mind." It should be noted, however, that business men generally dissented from this view on the ground that suppression of competition may be incidental to the achievement of other ends, expressly aimed at.

President Taft then went on to advocate laws which should describe those methods and practices deemed unfair. He recalled his recommendation made in January, 1910, for federal incorporation of companies doing an interstate business. He pointed out that the Bureau of Corporations was of great service to the Circuit Court in the formulation of the dissolution plans in the tobacco case, and thought advisable a law making this bureau, or some similar one, an executive commission to supervise interstate corporations. The law, in his view, might set forth rigid rules for organization and procedure, including effective publicity; and the proposed commission would supervise security issues, act as an advisory board for promoters in doubt as to the legality of their plans, and aid the courts in the dissolution and reorganization of illegal combinations.

INVESTIGATIONS. As in years past the Bureau of Corporations continued its inquiries into various combinations, including the Steel, Sugar, Lumber, and Tobacco trusts. Some of its results were published and are summarized under *AMERICAN TOBACCO COMPANY AND UNITED STATES STEEL CORPORATION*. In addition there were congressional investigations of the Steel and Sugar trusts. At the very last of December the Democrats in the House had agreed to authorize investigations into the Harvester and Shipping combines, and the so-called Money trust. Regarding this latter the following charges were made: That a half dozen Wall Street financiers dominate the money market, make and unmake panics, control railroads, the Harvester and Steel combines, international shipping, and insurance companies, and manipulate a chain of banks; that the present system of money, exchange, and credit entails enormous losses through speculation, gambling, and manipulation not necessarily incident to the natural course of trade; and that these practices are directed through well-defined centres, the greatest of which is alleged now actually to have the power of controlling credit and exchanges so as to produce business depression.

PROSECUTIONS: ELECTRIC LAMP TRUST. Late in December, 1910, the government had announced a suit against the combined manufacturers of electric lights. The defendants in-

cluded the General Electric Company and 35 affiliated and subsidiary companies controlling about 97 per cent. of the manufacture and sale of carbon filament, or incandescent, electric lamps. Some 80,000,000 of these lamps are sold annually. The evidence in this case was not submitted, for, shortly after the decisions of the Supreme Court in the Oil and Tobacco cases, the defendants pleaded guilty. The decree of the Circuit Court at Toledo, O., ordered the dissolution of the National Lamp Company and all subsidiaries; and forbade the General Electric Company to do business in the manufacture or sale of electric lamps except in its own name. One of the charges against this combination was that it used its control of patent rights to dictate the prices of its product to jobbers, wholesalers, and retailers. Moreover, by means of contracts with jobbers and dealers, due to power based on its patent rights, it had maintained a monopoly over lamps, the patents on which had expired. The court ordered these monopolistic price-fixing devices terminated and enjoined all the companies from entering into price-fixing agreements with each other or with independent concerns.

BATHTUB TRUST. In July, 1910, the government brought suit in the United States Circuit Court at Baltimore to secure an injunction restraining the Standard Sanitary Manufacturing Company and 15 other concerns and 32 officers, comprising the so-called Bathtub trust, from maintaining a price-fixing agreement. The evidence showed that this combination controlled about 85 per cent. of the business of the sanitary enameled ironware. Their control of production was based primarily on the control of a tool used in spreading the enamel upon the iron base of the article being made; they had forced numerous jobbers to sign trade agreements to handle only the combination's products. The court held that the ownership of a tool gave no monopoly right over the articles produced by it. In a very sweeping decree, the court ordered the dissolution of the combination.

In December, 1910, criminal suit was begun at Detroit against these same concerns and individuals on the same charges. Various demurrers and dilatory pleas were presented by defendants and overruled before the case came to argument late in 1911. Decision had not been rendered at the end of the year.

SUGAR TRUST. Following an investigation begun late in 1909 and completed in May, 1910, a suit in equity was filed at New York in November, 1910, against the American Sugar Refining Company, its officers, agents, and subsidiary companies as a combination in violation of the Sherman act. This case was not vigorously advanced by Attorney-General Wickersham, owing to the important bearing upon it of the decisions of the Supreme Court in the Standard Oil and Tobacco cases. Following those decisions, however, the case was again taken up and was being pushed forward at the end of the year. Meanwhile the House of Representatives, partly as a means of furthering that suit, authorized a committee to hold hearings on the history, organization, and methods of the combination. Representative Hardwick was made chairman. Hearings were held at Washington in August, and a great deal of rather well-known history was reviewed.

The suit against Mr. George R. Heike, former secretary of the American Sugar Refining Com-

pany, which grew out of the underweighing frauds, first discovered in 1907, and which had led to his conviction along with that of the superintendent of the Williamsburg Refinery, was carried to the United States Circuit Court of Appeals. This court in October affirmed the conviction of Heike, who then announced that his case would be appealed to the United States Supreme Court. During the investigation of the weighing frauds illegality was discovered in the draw-backs given to the American Sugar Refining Company on account of exported syrups. It was found that great quantities of these syrups, upon which the company had claimed and received draw-backs, were, in fact, manufactured out of free, rather than dutiable, sugar. The government claims were settled by the payment of \$700,000 by the company. This was entirely separate from the \$2,600,000 which the company paid the government on account of the underweight frauds. It was asserted that similar draw-back frauds had been discovered at New Orleans and San Francisco.

Another important suit involving this company was that growing out of the suppression of the Pennsylvania Sugar Refining Company in 1903-04. Trial had been set for the November term of the criminal branch of the United States Circuit Court at New York, but owing to the occupation of the attorneys for the defendants in formulating a plan for the disintegration of the Tobacco trust, trial was postponed to January, 1912. The two principal defendants were Washington R. Thomas, former president of the American Sugar Refining Company, and John E. Parsons, a director and former counsel of the company.

On October 11 hearings were begun in the Chancery Court at Newark, N. J., in the suit of one Nathaniel Cooper, against the National Sugar Refining Company and the heirs of Henry O. Havemeyer, to compel the forfeiture of \$10,000,000 worth of common stock in that company, alleged to have been issued to Mr. Havemeyer without due return, in 1911. This suit involved an enormous mass of testimony and enlisted the services of 25 lawyers for the defense, but had little interest for the general public, except in so far as it indicated the autocratic power of the former ruler of the Sugar trust.

BEEF TRUST. Two different suits have been carried on against the Chicago meat packers. One of these was a civil suit against the National Packing Company and others, begun March 21, 1910. This suit was dismissed by order of the United States Attorney-General in December, 1910, in order to facilitate the prosecution of the other suit. This second suit was a criminal suit, begun in September, 1910, against the ten principal owners of the Swift, Armour, and Morris packing companies. They were charged with maintaining an unlawful conspiracy in restraint of interstate commerce in cattle, sheep, and hogs, and in the sale of fresh meats. The indictment called attention to their numerous branch houses and laid stress on the existence of the National Packing Company as a central agency of the combination. The attorneys for the packers exhausted every device for delaying the prosecution of the trial, carrying various motions for the dismissal or stay of proceedings to the Circuit Court and even to the United States Supreme Court. Neverthe-

less, trial was actually begun in the District Court at Chicago in December.

The jury was finally selected December 19. In his opening statement United States District Attorney James H. Wilkinson stated that the defendants had, by means of the National Packing Company, maintained the old pooling practices of the packers and had really effected a most complete suppression of competition. He laid stress on the following points: That the combination maintained by the ten packers under indictment was so skillfully devised that subordinates in various companies thought that competition really existed; that defendants and their predecessors had dominated the meat industry since 1880; that the key to their system of price control has been the uniform method used by the members of the combination in figuring the "test cost" of product; that the prices thus resulting gave the members exorbitant profits; that the system devised under the old pooling agreements whereby the country was divided into sections and each member given a certain percentage of business in each section was still in existence; that forfeits are paid to members failing to get their proportion of business in different sections, such being provided by fines levied on those members getting more than their share; that formerly the representatives of the combination met weekly in Chicago to fix prices; that since the formation of the National Packing Company its directors have fixed prices periodically, using a specially devised trade code; that rate wars were instituted to drive out competitors; and that other competitors were absorbed, notably the Schwarzschild & Sulzberger Company, and the New York Butchers' Dressed Meat Company.

The defense contended that facts prior to three years before the indictment, or prior to 1907, should be excluded; that the National Packing Company was not organized to fix prices or control the trade; that the weekly meetings prior to 1903 were for the sole purpose of preventing the overstocking of the market with fresh meat; that the defendants had more than 300 competitors, who transacted 30 per cent. of the domestic meat trade. On December 26 a plea of immunity was entered in behalf of three of the defendants on the ground that they had furnished evidence in 1905 to the Commissioner of Corporations. On the same day the government read to the jury a contract whereby the defendants had sought in 1902 to form a \$500,000,000 merger of meat-packing interests. Further testimony showed that this attempt followed an effort of the preceding year to form a combination with a capital of about \$900,000,000; this was disclosed by an agreement read by government counsel and signed by members of the Armour, Swift, Morris, and Cudahy firms. Evidence was then submitted showing that the National Packing Company was formed in 1903 with a capitalization of \$15,000,000, by the merging of 13 companies, all of which had previously been purchased by the big packers. Of these companies the G. H. Hammond & Company, the St. Louis Dressed Beef Company, the Hammond Packing Company, the Omaha Packing Company, the United Dressed Beef Company, and the Anglo-American Provision Company were the largest.

POWDER TRUST. Suit had been begun against the E. I. DuPont de Nemours Powder Com-

pany and 27 other corporations known as the Powder trust in 1907. After prolonged investigation and argument, the United States Circuit Court at Wilmington, Del., in June, 1911, Judges Gray, Buffington, and Lanning presiding, declared the defendants guilty of maintaining an unlawful monopoly in the manufacture and sale of powder and other explosives. Indictments against 14 other corporations and United States Senator DuPont were dismissed. The combination was ordered to dissolve. In the course of its opinion the court held that a restraint of competition is not necessarily a restraint of interstate trade and commerce. The court said, "The determination of whether it be so must depend upon the facts and circumstances of each individual case. It is undoubtedly the policy of the statute that competitive conditions in interstate trade should be maintained wherever their abolition would tend to suppress or diminish such trade. But this, being true, does not read into the statute a denunciation of all agreements that may restrain competition without regard to their purpose or direct effect to restrain trade or commerce among the several States." This distinction, based on the Supreme Court rulings in the Oil and Tobacco cases, was deemed of great significance in the evolution of judicial interpretation of the Sherman act.

STEEL WIRE TRUST. About July 1, 83 men, officers in various wire manufacturing companies, were indicted by the federal grand jury in New York for violation of the Sherman act, through the maintenance of nine pooling agreements. These men were officers in the American Steel and Wire Company, and 36 other corporations or partnerships. The nine pooling associations involved with the percentage of their respective industries, which each controlled, were as follows: Fine Wire Magnet, 85; Underground Power Cable, 95; Horseshoe Manufacturers, 70; Bare Copper Wire, 95; Telephone Cable, 80; Rubber Covered Wire, 80; Lead Encased Cable, 80; Wire Rope, 80; Weatherproof and Magnet Wire, 90. Though the defendants claimed that the pools were dissolved at various times in 1908-09-10, they entered pleas of *nolo contendere*, and were punished by fines of about \$1000 each; the organizer of the pools, E. E. Jackson, was fined \$45,000. The total of fines paid up to November 1, 1911, was \$128,720.

SOUTHERN PACIFIC COMPANY. Civil suit was begun February, 1908, in the United States Circuit Court in Utah charging the Southern Pacific Company and the Union Pacific Railway Company with being a combination and conspiracy in violation of the Sherman act. On June 23, 1911, the court rendered a decision dismissing the suit on the ground that the roads involved were not competing lines and hence their combination was not a violation of law. Judge Cook dissented from the decision. The government appealed to the United States Supreme Court, before which the case was set for argument in January, 1912.

WATCH TRUST. On December 20 the government began suit in the United States Circuit Court at Philadelphia against the Keystone Watch Case Company, and its officers, charged with conspiracy and attempt to monopolize the manufacture and sale of watch cases in the United States. The government's petition gave the history of the company. It pointed out that

the watch industry in the United States is divided into two parts, watch case and watch movement. It charged that the defendants manufactured and sold 80 per cent. of all watch cases produced in the United States. It alleged that the Keystone Watch Case Company, by various reorganizations and purchases, had consolidated with itself or obtained control over the Riverside Watch Case Company, the New York Standard Watch Company, the United States Watch Company, the E. Howard Clock (afterwards Watch) Company, the Crescent Watch Case Company (which had a controlling interest in the American Waltham Watch Company), the Bay State Watch Case Company, the American Watch Case Company of Toronto, Ltd., and the latter's sales agent, the Keystone Crescent Watch Case Company of Canada, Ltd. Moreover, the government charged that in 1904 the Keystone Company had by contract become the exclusive agent in charge of the export trade of the Elgin Company, except in Canada; and that in 1909 a similar contract was made with the Waltham Watch Company, except as to the trade with Great Britain, France, and Spain. The defendants were charged with forcing jobbers and dealers to handle only their goods at prices fixed by them, maintaining black lists for this purpose. They were also charged with threatening independent companies with destruction should they refuse to sell out to the combination. The government charged that defendants had asserted that "they would spend a million dollars, if necessary, to drive some of the larger competitors out of business, and that they would hang crepe on the doors of such competitors' factories."

ANTHRACITE COAL COMBINATION. In June, 1907, suit was begun in the Circuit Court for the Eastern District of Pennsylvania against the Reading and five other anthracite coal carrying roads for maintaining a conspiracy to control the production and distribution of anthracite coal. The charges in this suit in addition to this general charge of conspiracy declared the purchase of the Susquehanna and Western Railroad by the Erie Railroad, and the purchase of the Jersey Central by the Reading Company to be in restraint of trade; that the more than 40 agreements whereby these roads contracted to pay the independent collieries along their lines 65 per cent. of the tide-water price of coal were restrictions of trade; and that the organization of the Temple Iron Company, whose stock was owned by the defendant roads, had prevented the building of another tide-water railroad, and was, therefore, a restraint of commerce. On December 8, 1910, the Circuit Court rendered a decision favorable to the defendants, except that the Temple Iron Company was enjoined from further preventing the construction of a road by independent mine operators. Justice Buffington, moreover, dissenting from his two associates, held the 65 per cent. contracts to be illegal. Both sides appealed to the United States Supreme Court, before which the case was argued in October. Both sides set forth the history of the case and the various transactions involved, endeavoring to so interpret the conditions as to substantiate their respective claims. Decision had not been rendered at the close of the year.

LUMBER TRUST. Following a comprehensive investigation into the organization and conduct

of the lumber business, four suits in equity and one criminal suit were initiated. In May the Eastern States Lumber Dealers' Association, its officers, and members, were charged with conspiracy in restraint of trade through the use of black lists and trade agreements. In August suit was begun at Detroit against Edward E. Hartwick and others, conspiracy and unlawful restraint of trade being alleged. In September civil suit was begun at Denver against the Colorado and Wyoming Lumber Dealers' Association, and the Lumber Secretary's Bureau of Information, conspiracy in restraint of trade in lumber and its products being charged. The government sought an injunction restraining the bureau from circulating black lists and enjoining the association from supporting the bureau. In October similar suit was begun at St. Paul against the Lumber Secretary's Bureau of Information and other companies and individuals on a similar charge. The criminal suit was begun in June in the northern district of Illinois against the secretary of fourteen retail lumber associations, covering twenty-three States, from Pennsylvania to the Pacific coast. They were charged with conspiracy by maintaining a central bureau for the control of the sale of lumber; it was alleged that they kept black lists of wholesale dealers who violated a rule forbidding direct sale to consumers.

TRANS-ATLANTIC STEAMSHIP POOL. A petition in equity was filed at New York City on January 4 against the Hamburg-American Packet Company and other steamship lines as maintaining a combination to control traffic on the Atlantic Ocean. Various delays were interposed to the prosecution of the suit, which had not been argued at the end of the year.

MAGAZINE TRUST. In June suit was begun in New York against a large number of publishers of magazines, charging them with having formed an illegal combination by means of the Periodical Publishing Company, or the Periodical Clearing House. The object of this company was said to be the control of the prices at which various magazines should be re-sold to local agents and ultimate consumers. Among the defendants were Harper & Bros., the Ridgeway Company, the S. S. McClure Company, the Butterick Publishing Company, and the Review of Reviews Company. The government contended that the object of the association was to prevent competition on subscription rates. The defendants declared that their purpose was merely to maintain subscription agencies. They declared that they had asked the government for an opinion as to the legality of the association and that the Department of Justice, after examining all papers and plans, gave assurance that there was no violation of the law.

SHOE MACHINERY TRUST. Following various investigations by both State and national authorities, the grand jury at Boston brought in an indictment in September against S. W. Winslow and other members of the United States Machinery Company, charging them with illegal combination and monopoly in shoe machinery. This case aroused the greatest interest throughout the boot and shoe industry because of the close control which the United Shoe Machinery Company has maintained over machinery used in this industry by means of its leasing system. This system prevents manufacturers from gaining title to machines, all such being leased on

a royalty basis. Moreover, the power thus acquired over manufacturers, it is alleged, has been used to prevent the introduction of any machinery made by rival concerns.

OTHER PROSECUTIONS. Among the various other prosecutions under the Sherman act, the following may be mentioned: The cotton corner case, wherein certain cotton brokers were charged with a conspiracy to monopolize the trade in raw cotton, was not much advanced through the year. Certain demurrers, which were sustained by the Circuit Court, were appealed by the government to the Supreme Court, whose decision had not been rendered at the end of the year. The Night-Rider cases, which had been appealed to the Circuit Court of Appeals in the Sixth Circuit, had been argued, but decision had not been rendered. The suit against the Great Lakes Towing Company and others at Cleveland as constituting a monopoly of the towing of vessels on the Great Lakes, was being advanced; a vast amount of testimony had been taken and the case was nearly ready for argument. The members of the Southern Wholesale Grocers' Association, charged with an attempt to control the trade in groceries and other necessities in the Southern States, voluntarily accepted the terms of a comprehensive injunction restraining them from the acts complained of. This was issued by the Circuit Court at Birmingham in October. Suits against the so-called Milk Trust at Boston, a wall paper combination at Cleveland, the Standard Wood Company and others (the kindling wood trust), at New York, the Elevator Trust in Oklahoma, were still pending. The suit against the American Naval Stores Company, in which two individual defendants were sentenced to three months' imprisonment, was taken to the Supreme Court by a writ of certiorari. Suit was also begun in August at Columbus, O., against the Lake Shore and five other railroads by reason of agreements relating to the mining, transportation, and sale of coal. Suits for the dissolution of the Chicago Butter and Egg Board, and against the so-called Brick trust at Chicago were pending at the close of the year.

TRUSTS IN EUROPE. The extended discussion given to the trust problem called out some investigation of how the problem of industrial combination was being treated in European countries. Inquiry showed that in England, Germany, and France combination is looked upon as an inevitable and indeed desirable tendency in industrial evolution; and that, owing to its advantages in giving stability to industry and prices and in increasing power in international competition, it should be at least given a reasonable legal status.

ENGLAND. In England there is no law and no agitation for the enactment of a law similar to the Sherman act. Indeed, the legal situation is very different in view of an interpretation of the common law doctrine of restraint of trade made in 1894 by the House of Lords. Following the consolidation of the two principal concerns engaged in the manufacture of guns and ammunition, the charge was made that this transaction was made in restraint of trade. The House of Lords, however, took the view that the interpretation of these words must be made in the light of present industrial and social conditions. It pointed out that science and invention had almost

annihilated space and time, "and that consequently there should no longer exist any cast-iron rule making void any agreement not to carry on trade anywhere."

In the absence of a protective tariff behind which a combination may build up an oppressive control, the English combinations have generally been limited to securing the inherent economies due to the elimination of competitive wastes and the realization of certain advantages of large scale production. In a few instances combinations that have sought primarily a monopolization of trade have been prevented from using their power by a vigorous assertion of public opinion.

GERMANY. In Germany the law not only does not forbid contracts for the control of a trade or the pooling of a business or industry but actually encourages them. The result is that there are nearly four hundred cartels or federations similar to American trusts; there are twelve thousand establishments reported as belonging to syndicates. The government even goes so far as sometimes to become a party to a trade agreement. The German cartel, however, is not the closely consolidated, secret, and presumably permanent organization that the usual American trust is; but it is as a rule open to any concern submitting to the federation agreement. Such agreements, moreover, may be for a brief period to try their value; members are left practically free in the management of their internal affairs and in the control of their own share of the business. These federations are an expression of a cooperative spirit of the German people and represent a rational attempt to increase the stability and security of trade and to increase competitive power in the world's markets.

FRANCE. In France also there has been a wide development of federations or groupings of concerns in the same line; these have been formed openly and had even gone to the extent of admitting German rivals, thus insuring uniformity of prices in foreign markets.

CANADA. A considerable number of writers during the year called attention to the solution of the trust problem in Canada, under the act of 1910. Under this act six persons may secure an inquiry by making application to a court in writing setting forth specifically the abuses complained of. If the judge is satisfied that there are plausible grounds for complaint he transmits an order to the minister of labor, who proceeds to organize an impartial board of inquiry. This board is composed of one representative from each side and a third chosen by these two or appointed by the minister of labor. The entire expense of all steps is borne by the government. The board is given ample power to get all existing evidence. Its findings are published in the public press. If abuses and evils are found to exist six remedies are offered: (1) Pressure of an informed public opinion; (2) removal of tariff advantages, if any; (3) revocation of patent rights; (4) a fine of \$1000 per day and criminal liability if the combination ignores the findings of the board of inquiry; (5) cancellation of licenses; and (6) withdrawal of subsidies. It thus appears that the Canadian act not only deems combination legal but also natural and inevitable. It aims to preserve a fair price instead of competition; to make the monopolist

share his profits with others, monopoly being looked upon as natural and desirable in some industries. It has the merit also of providing a remedy suited to the conditions of each case; a few cases that have thus far arisen under this act for the investigation of combinations, monopolies, and trusts have been settled speedily and with almost no disturbance of industrial conditions. At the very close of the year the Borden ministry announced that it was preparing a measure for further trust regulation. This would not be a punitive measure, as is the Sherman act, but one providing for a national commission to regulate the organization, capitalization, and methods of combinations.

TSCHUDI, Hugo von. A German art director, died November 24, 1911. He was born in 1841 in Lower Austria. He received his education at the Gymnasium of St. Gall, in Switzerland, and the University of Vienna. The early part of his life was spent in traveling in Italy, France, England, and other countries. He then became a volunteer assistant in the Austrian Museum of Art Industry in Vienna. He was later appointed to the post of assistant director in the picture gallery and in the department of Christian statuary in the Royal Museum in Berlin. In 1896 he became director of the National Gallery of Berlin. Here he remained until he was appointed director of the National Gallery of Bavaria at Munich. He was the author of several works on Italian classical art and coöperated with Prof. Wilhelm Bode in compiling a catalogue of the Statuary of the Christian Epoch. He also wrote on *Painting of the Older Dutch School*, and published a monograph on *Modern Art*, especially dealing with Menzel, Böcklin, and Manet for the *Catalogue of the German Centennial Exhibition* in 1906.

TSETSE FLY. See ENTOMOLOGY.

TUBERCULOSIS. The new edition of the *Tuberculosis Directory*, issued by the National Association for the Study and Prevention of Tuberculosis, covers every phase of the situation with regard to the fight against this scourge. It shows that over 600 cities and towns of the United States and about 100 in Canada were making active efforts for the suppression of consumption, and that on April 1, 1911, there were nearly 1500 different agencies at work for the reduction of tuberculosis—an increase of nearly 700 per cent. in the last seven years. There were 421 sanatoriums, hospitals, and day camps, 511 associations and committees engaged in prevention, 342 special dispensaries, 68 open-air schools, and 98 hospitals for the insane and penitentiaries which made special provisions for tuberculous inmates. The book also contains a summary of the anti-tuberculosis legislation in every State, and the municipal ordinances of about 250 cities.

Next to the United States, Germany was probably most active in the campaign against the spread of tuberculosis. According to the report of the German Central Committee, there were 99 public and 34 private sanatoriums for adult consumptives, in all about 1400 beds. Children are received in 22 institutions, with 1000 beds. There are 86 institutes, with 8122 beds, for children affected with scrofulous affections and those threatened with tuberculosis. Ninety-nine forest convalescent stations were opened during the summer months. Recently following the experience of America, such mildly

affected patients as were able to work during the day were received in out-door camps for the night only. They were provided with a nourishing supper and breakfast. In addition to these agencies, there were fifteen open-air schools and two farm colonies; and thirty-four observation stations were established.

The question as to the risk from tuberculous milk was again actively debated. Hess followed up seventeen cases of children who had been fed on infected milk for longer or shorter periods. In selecting his cases, he first proved that the milk involved contained tubercle bacilli and second that the children had been fed on it habitually. These children were all under five years old. With considerable difficulty Hess kept these seventeen children under observation for three years, examining them all every three months. In only one instance did clinical tuberculosis develop, although several of the children reacted positively to tuberculin inoculation. The child developing the disease had been fed on milk containing virulent tubercle bacilli, and had had a cervical adenitis four months previous to the beginning of the inquiry. A somewhat similar study was undertaken by the Imperial Health Commission of Germany, which investigated the health of 151 children who drank raw milk coming from cows with tuberculosis of the udder. Two of these children between the ages of one and two years developed cervical gland tuberculosis, from which a bovine type of bacillus was cultivated. Some other children showed signs suggestive of tuberculosis. The two children who acquired the disease drank infected milk for long periods, but, except for the glandular infection, were in good health one and one-half and two years later respectively. The Royal Commission on tuberculosis appointed in Great Britain in 1901—immediately after Koch's declaration that human and bovine tuberculosis are distinct diseases—to investigate the question, issued a final report. The commission was instructed to inquire into three questions: 1. Whether tuberculosis in man and animals is the same disease. 2. Whether man and animals can be reciprocally infected. 3. Under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favorable or unfavorable to such transmission. Several interim reports have been made during the progress of this investigation and have been noted in previous numbers of the *YEAR BOOK*. The final report confirms the work of the previous ones, except that the possibility of modifications of the two types of tubercle bacilli suggested in the second report has not been confirmed. It is now stated that both human and bovine tubercle bacilli may be present at the same time in man, but only the bovine bacillus has been found in cattle. The bovine, human, and avian types of tubercle bacilli have all been found in natural tuberculosis in pigs, either alone or mixed. It has been proved that fatal cases of phthisis in adults may be caused by the bovine bacillus. This is important, since Koch, while three years ago accepting the statement of the commission as to fatal mesenteric tuberculosis being caused in children by the bovine bacillus, still held that all cases in the adult were due to the human bacillus alone. The human and bovine types of bacilli are

found to be morphologically indistinguishable, although showing some differences in their cultural and pathogenic properties. The bovine bacillus produces a fatal tuberculosis in cattle, rabbits, guinea-pigs, chimpanzees, monkeys, goats, and pigs. The human bacillus produces a fatal tuberculosis in guinea-pigs, chimpanzees, and monkeys, but causes only slight and non-greivous lesions in cattle, goats, and pigs, even when administered in large doses. No anatomic or clinical difference was found in the cases of fatal tuberculosis in man, produced by the bovine and the human bacillus. Man must therefore be added to the list of animals notably susceptible to bovine tubercle bacilli.

The second question, whether animals and man can be reciprocally infected with tuberculosis, was difficult to answer, for, though the liability of animals to infection from man could be experimentally tested, man's liability to infection from animals must remain a matter for inference. It was, however, considered proved that mammals and man can be reciprocally infected.

The third question, as to the conditions under which transmission from animals to man takes place, was dealt with extensively. Man has been multiplying the human type of bacillus, to which he is most susceptible, in the bodies of other animals, and thus increasing his chance of infection; but animals capable of suffering from severe generalized human tuberculosis are comparatively few, and none of them are commonly used for foods. Cattle, for instance, are not active multipliers of the human bacillus, being, on the contrary, highly refractory to this infection, and the cow herself, while excreting bovine bacilli in her milk, has never been found under natural conditions to eliminate in this way the human type of bacillus. Experimentally, it is true, the human bacillus has been made to appear in the milk of the cow and goat, but to bring this about immense doses of bacilli have been required. Nevertheless, it cannot be affirmed that man is entirely free from risk of infection through animal food with that type of bacillus to which he is most prone, though the degree of danger is undetermined. In 128 cases of fatal tuberculosis in the human adult, especially in lung cases, the lesions were due, with few exceptions, to human bacilli. In abdominal tuberculosis, it was very different, especially in children. Of young children dying from primary abdominal tuberculosis, nearly one-half of the cases could be referred to the bovine bacillus alone, and there can be no doubt, therefore, that a considerable proportion of the tuberculosis affecting children is of bovine origin, especially that which affects primarily the abdominal organs and cervical glands; nor can there be any doubt that primary abdominal tuberculosis, as well as tuberculosis of the cervical glands, is due to the ingestion of tuberculous infective material. A considerable portion of this material is declared to be infected milk.

TUBERCULOSIS IN ANIMALS. See VETERINARY SCIENCE.

TUCKER, W. J. See LITERATURE, ENGLISH AND AMERICAN, Religion.

TUFTS COLLEGE. An institution of higher learning at Tufts College, Mass., founded in 1852. The total number of students enrolled in all departments of the college in 1910-11 was 1107. The faculty numbered 225.

Among the changes in the faculty during the year were the following: George Thompson Knight, Packard professor of Christian theology, died September 10, 1911; Lawrence B. Evans, professor of history, and Thomas Whittemore, professor of English and instructor in the history of art, were given leave of absence; A. L. Andrews, Ph. D., was appointed associate professor of history; and A. A. Berle, D. D., was appointed Woodbridge professor of applied Christianity. The college received during the year from the estate of Mary A. Richardson \$20,000 and from the estate of Caroline M. Barnard \$10,000. The amount of the productive funds of the college is \$1,090,726 and the income is about \$50,000 annually. The library contains about 65,000 volumes. The president is F. W. Hamilton, D. D., LL. D.

TUNGSTEN. See CHEMISTRY, INDUSTRIAL.
TUNGSTEN LAMP. See ELECTRIC LIGHTING.

TUNIS. A north African French protectorate, having an estimated area of 64,600 sq. miles, and a population (1910) of 1,923,217. The capital is Tunis, with 227,519 inhabitants—100,000 Moslems, 50,000 Jews, 18,626 French, 52,076 Italians, and 6174 Maltese.

PRODUCTION AND COMMERCE. The area under principal crops and the total yield for two years (1911 preliminary), with yield per hectare in 1910, are given below:

	Hectares		Quintals		Qs. per ha.
	1910	1911	1910	1911	
Wheat	458,000	505,000	1,100,000	2,350,000	2.4
Barley	505,200	453,000	900,000	2,050,000	1.8
Oats	50,000	50,000	489,000	550,000	9.8
Corn	20,000	20,000	62,000	65,000	3.1
Vines*	14,100	14,095	250,000	454,700	17.7

* Yield in hectoliters.

The mining output has increased during recent years; copper, lead, zinc, phosphates, and iron are raised. The fisheries products are important. The native indoor industries include wool spinning and weaving; carpets, slippers, and saddle making; the manufacture of pottery and matting weaving.

The trade is given below for three years in francs:

	1908	1909	1910
Imports	123,028,000	114,447,000	105,497,000
Exports	94,155,000	109,168,000	120,401,000*

* Phosphates, 32,330,000 francs; olive oil, 17,091,000; cereals, 12,246,000; wine, 7,631,000; zinc ore, 5,454,000; lead, 4,294,000; iron, 4,153,000; fish, 4,092,000; animals, 3,994,000; skins, 3,648,000; esparto, 3,107,000; fruits, 2,624,000; sponges, 2,598,000; woollens, 2,180,000; cork, 1,723,000.

France contributed imports and received exports valued at 59,255,000 and 59,379,000 francs respectively; Algeria, 12,360,000 and 18,690,000; Great Britain, 11,015,000 and 10,779,000; Italy, 5,874,000 and 21,744,000. In 1910 there entered at the ports 12,297 vessels, of 4,151,050 tons. Railways (1910), 1532 kilometers; telegraph lines, 4630 kilometers; wires, 16,004; number of offices, 204; of post offices, 415.

FINANCE AND GOVERNMENT. The budget for 1911 showed revenue amounting to 108,832,148 francs; expenditure, 108,821,131. Revenue derived from direct taxes, 10,964,800 francs; in-

direct taxes, 16,138,400; state monopolies, 18,077,600; domains, 3,041,100; other ordinary, 3,737,040; extraordinary, 15,873,208. Expenditure for public works, 58,748,192; finance, 31,010,957; administration, 6,839,009; instruction, 4,145,399; posts and telegraphs, 3,694,900; etc.

Sidi-Mohammed en Nasser was in 1911 the reigning bey. The government is administered through a French resident-general (1911, G. F. Alapetite), under the direction of the French Foreign Office.

TUNNELS. THE LOETSCHBERG TUNNEL.

This great tunnel which had been in process of construction since 1906 was reaching completion in 1911, and the two headings met on March 31, 1911, after 2532.5 working days had been consumed in the work. This tunnel which has been discussed in the 1909 and 1910 issues of the YEAR BOOK is the third longest tunnel in Europe, being over nine miles in length under the Loetschen Pass. It differs from previous tunnel construction in that in portions the track is curved, though this was not contemplated in the original plans but was made necessary by the breaking through of the river Kandar at an early stage of the construction. The Loetschberg tunnel is part of a line from Bern to Brig, on which other engineering features have proved hardly no less serious than the actual tunnel excavation. These include cuts, embankments, and bridges, all of unusually serious character, so that the entire line is one of the most notable in European railway construction. The new tunnel makes possible the quick connection from France with the Italian railway system, which it connects with various French and Swiss lines on the north. The estimated cost of the project has been in the neighborhood of \$17,500,000. At the end of the year almost all of the masonry work of the tunnel had been completed, and active progress was being made with the railway installation itself, special forms of electric locomotives having been designed for this purpose.

SUBWAYS. BOSTON-CAMBRIDGE. During the year there was under active construction a subway extending from Park Street, Boston, to Harvard Square, Cambridge, a distance of 17,000 feet. This subway consisted of a tunnel under Beacon Hill to a point at the corner of Phillips and Grave streets, where it emerged and was carried as an elevated structure on private land to the corner of Charles and Cambridge streets, whence it crossed the Charles River on the Cambridge Bridge, which was built in 1907 with available space for such railway tracks. From the Cambridge end of the bridge a descent is made again into the Cambridge subway proper. The Boston portion of the tunnel was built by the Boston Transit Commission, while the elevated section in the city of Boston, and the entire work in Cambridge, were done by the Boston Elevated Railway Co. In Cambridge much of the work was done in open cut, but considerable tunneling had to be done in which a shield under atmospheric pressure was employed. Where the shield method was used, an arched roof was constructed of concrete.

The Beacon Hill tunnel is about 2500 feet in length, with about 300 feet in open cut at or near the surface of the ground. It was constructed through a very hard mixture of sandy clay containing numerous small stones, and occasionally boulders, by using a hydraulic shield,

and following up the work rapidly with the concrete. The system also involves the construction of a number of stations, including terminals at Park Street and at Harvard Square. This subway is a portion of the comprehensive plan for the development of rapid transit facilities between the central part of the city of Boston and its outer portions and suburbs. Subways previously had been constructed under Washington and Tremont streets, the latter for the use of the surface cars, and to distribute the traffic to the different outlying sections of the city.

NEW YORK SUBWAY. Work on the New York subway system progressed slowly during 1911, the questions relating to the granting of the franchises for new lines and extensions being argued almost endlessly by the various interests concerned. While the Brooklyn Fourth Avenue subway was well advanced at the end of the year, in fact was near completion, very little work has been done on the new Lexington Avenue subway. Six contracts, aggregating about four miles long, were reported as being under way January 1, 1912, five of these being under one contractor, and a seventh section was soon to be started. With the inconveniences of previous subway construction in mind it was provided that all the construction work be done without active interference with street traffic, a plank roadway surface being laid and excavation carried on beneath. At the end of December, about half a mile of such temporary roadway had been laid; earth and rock excavation was being carried on over a somewhat greater length of line, and shafts were being sunk for tunneling.

The Brooklyn Fourth Avenue subway was about 80 per cent. completed. It was divided into six contract sections, at an aggregate of contract prices of \$14,807,000. Over 2500 men were employed on this work at the end of the year. The most advanced section was 95 per cent. completed, while the most backward was 67 per cent. completed.

Late in the year work was resumed on the southern terminal part of the Centre Street loop subway, including the terminal station under the new Municipal Building and the approach thereto. This project had been retarded for a long time on account of the construction of the Municipal Building, although the rest of the loop costing some \$10,000,000 had been completed for over two years and was lying idle.

THE NEW KINGSWOOD TUNNEL. A new tunnel piercing one of the lesser ridges of the Allegheny Mountains west of Tunnelton in Preston county, W. Va., was one of the interesting engineering features of the double tracking of the Cumberland Division of the Baltimore & Ohio Railroad between Blaser and West End, W. Va. Previously the traffic had been handled through an old single track tunnel at Kingswood, but it was determined that a new tunnel should be built with a reduction of grade and curvature which would take care of the heavier or east-bound traffic, leaving the west-bound traffic to the old tunnel. The new tunnel is 31 feet in clear width, and 24 feet 6 inches in clear height, being of adequate size for two railway tracks. The roof is a semi-circular, 5-ring, brick arch, 15 feet, 6 inches radius, and the sidewalls are of concrete, with a minimum

thickness of not less than 24 inches. Space is provided for wire and cable conduits, if necessary for electric working in the near future. The new tunnel is 4211 feet in length, as compared with 4149 feet for the old tunnel, and it has been cut through a dense gray shale which disintegrated rapidly on exposure to the air. The work was begun on September 26, 1910, and at the end of December, 1911, was about 90 per cent. completed.

CHICAGO RIVER TUNNEL. The success attending the Detroit River tunnel which consisted of steel tubes sunk in a trench excavated in the river bottom and then covered with concrete led to a somewhat similar form of construction for a tunnel under the Chicago River at LaSalle Street. Here also a deep trench was dredged in the river bed and in this was sunk a twin tube steel shell whose ends were closed with wooden bulkheads. This shell was nearly 300 feet in length and its ends were supported on bearings. By pumping sand under and around the tubes the shell was covered and then the tubes which had been partly lined with concrete were completely coated within with concrete which was pumped under pressure of from 35 to 45 pounds through pipes from a hopper on the shore.

CLEVELAND SHORT LINE TUNNEL. A tunnel of concrete with its arch and side walls heavily armored was built on the Cleveland Short Line in water-bearing gravel and fine sand. It is of horseshoe section 25 feet wide at the floor, 25 feet 9 inches high, and 30 feet 6 inches wide at the springing line. The lining of the tunnel is 57 inches in thickness and the base which is reinforced with both vertical and horizontal transverse bars is 6 feet 6 inches.

SAVAGE TUNNEL. In building the Savage tunnel for the Western Maryland Railway soft wet material was encountered and the pneumatic system was used in the excavation. The method employed was first to excavate the upper part or a top heading in which a lock was placed, following this by digging out the sides leaving a central portion to support the roof timbering and the braces of the side trenches. The walls and roofs of concrete were then built.

During 1911 the consideration of a subway scheme for the city of Toronto was before the municipal government. It was proposed to build a three-mile double-track subway from the water front north to the city limits. Underground construction was being carried on in Buenos Ayres. See **AQUEDUCTS**; **RAILROADS**.

TURBINES. See **BATTLESHIPS**; and **NAVAL PROGRESS, Propulsion**.

TURBO-ALTERNATORS. See **ELECTRIC PROPULSION OF SHIPS**.

TURBO-GENERATORS. See **STEAM TURBINE**.

TURCO-ITALIAN WAR. ITALY'S ULTIMATUM. The civilized world was startled by the announcement on September 28 that on the night of Tuesday September 26 Italy had sent an ultimatum to the Turkish government concerning her rights in Tripoli, stating the grievances of Italy against Turkish misgovernment in that province, requesting the Porte to give orders permitting the occupation of Tripoli by Italy, and declaring that if a reply were not received within twenty-four hours Italy would at once take measures to insure the occupation. The news was wholly unexpected, for although there

had been reports of Italian complaints from time to time, they were not believed to be of a serious nature. The purport of Italy's ultimatum was as follows: After reciting the grievances of the Italian government owing to the disorder and neglect in which the Turkish government left Tripoli and Cyrenaica and characterizing the course of the Porte as hostile to legitimate Italian activity in these regions, it declared that the economic concessions now proposed by the Porte came too late and that the Italian government believed from the result of past experiences that further negotiations were useless. It further declared that the situation in Tripoli and Cyrenaica was extremely dangerous and that Italian subjects were leaving Tripoli. The sending of military transports from Turkey aggravated the situation. Therefore the Italian government declared its intention to proceed to the military occupation of Tripoli and Cyrenaica, and required the Porte to give orders that would prevent any opposition to such occupation. It demanded a reply within twenty-four hours. The Porte's reply was regarded by the Italian government as unsatisfactory and a state of war between the two countries existed after half-past two on Friday afternoon, September 29.

NAVAL OPERATIONS. Later on the same afternoon occurred the first act of war, namely, the sinking of three torpedo boats off Prevesa on the coast of Epirus by the squadron commanded by the Duke of the Abruzzi. The government declared that this was necessary to prevent a sudden attack by the Turks on the Italian fleet, but it assured the powers of Italy's intention to confine the war strictly to Tripoli and Cyrenaica. A second squadron was dispatched under Vice-Admiral Aubry to blockade Tripoli and demand its surrender. This being refused a bombardment was begun on October 3. The Turkish cabinet resigned and Said Pasha, president of the Senate, was appointed grand vizier. After some difficulties he formed a new cabinet of the same political tendencies as its predecessor. Great indignation was felt in Turkey at the high-handed course of Italy and notes of protest against the Italian ultimatum were addressed by the Porte to the powers. These notes declared that although the Ottoman government was free to proceed as in a state of war, it believed that the war could still be brought to an end and urged the powers to take steps for that purpose. The Italian plan of campaign was reported to be as follows: The fleet was to blockade the Tripolitan coast and prevent the landing of Turkish reinforcements; and war vessels were to be distributed along the Albanian and Macedonian coasts to prevent naval attacks or privateering, and to protect Italians and foreigners on Ottoman territory. To allay the fears of the powers, especially of Austria-Hungary, the Italian government declared it had no intention of landing in any part of the Ottoman empire except Tripoli and Cyrenaica. The cruisers in Tripolitan waters were to begin the occupation as soon as they received orders. The bombardment of Tripoli was begun at 3:30 on October 3 by a division of war vessels under Vice-Admiral Favarelli. The forts were soon demolished and fire broke out in several of the military buildings. White flags were seen, and the fleet began to send out landing parties. On October 5 two battalions of seamen and marines took possession of the city.

THE LAND FORCES. The expeditionary force, whose number could not be exactly ascertained, was estimated at 25,000 infantry and 1000 cavalry and artillery, which, with the engineers and auxiliary bodies, including the Red Cross detachment, came to about 35,000. No resistance was offered by the Turkish force, which had withdrawn into the interior. Concerning its number there was much doubt, estimates varying from 5000 to 10,000. On October 13 General Caneva, with an expeditionary force, landed at Tripoli. The plans of the Turkish forces in the interior were still unknown. There were occasional engagements, but they were affairs of outposts and of no especial importance. A force of Turkish cavalry was reported to be at an oasis a short distance from Tripoli. The situation seemed hopeless at first for Turkey because, Italy controlling the sea, it was impossible to send reinforcements. General Caneva upon his arrival addressed a proclamation to the natives saying that Italy had not come to enslave the population, but to restore to them their rights and to punish the usurpers, and that the inhabitants would be governed by the chiefs under the patronage of the king of Italy and would be treated with justice, clemency, and gentleness. The engagements in Tripoli were of little military importance. On October 18 a convoy of troops, escorted by eleven warships, arrived in Benghazi and demanded its surrender. This being refused, bombardment was begun on October 19, and the marines and troops immediately landed. They encountered determined resistance at first, but they succeeded in occupying the city. The casualties were slight. In Tripoli the Italians were menaced by the fanatical spirit of the Arabs.

REPORTED MASSACRE. A fanatical rising of the Arabs occurred on October 23 in Tripoli and in the oasis outside the city. According to reports, which came largely through British sources, the Italians avenged themselves by a wholesale massacre of the Arabs. According to one account the Turks were known to have distributed 10,000 stand of magazine rifles and ammunition to the Arabs. The Italians had succeeded in collecting only 3000 of these. Thus when the Arabs arose, the Italians thought they might have to deal with several thousands of armed men and that they must therefore strike a blow which would crush them completely on the start. According to the *London Times* correspondent, the retribution inflicted upon them was terrible, but far less so than the indiscriminate bloodshed that would have followed had the rising not been premature. According to some reports the troops had orders to kill all Arabs found in the oasis and to search from house to house for arms and ammunition. It was said that the troops went throughout the oasis, shooting indiscriminately all whom they met, the innocent and guilty alike and even young persons and women. The Italian government promptly denied the reports of cruelty, and the premier declared that the facts were as follows: There was a sudden rising of the Arabs in Tripoli in an oasis on October 23. They concealed their rifles in their houses and attacked the Italians in the rear, while other Arabs joined the Turks in attacking them in front, thus indicating a preconcerted plan of treachery. The Italian troops, after sustaining some severe losses, repulsed the attacks both in front and in rear. It became necessary then to

punish those Arabs who had committed special criminal acts and to clear the oasis of the traitors. All who were found with arms in hand during the fight or immediately after were shot, and those who were found guilty of murder after regular trial were also shot. About 2200 other Arabs were arrested for conniving at treachery or disobeying the orders of the government for the surrender of all arms. These were transported to the Italian islands. In the days following October 23 similar outbreaks occurred and were repressed in the same way. The premier went on to say that there was no systematic slaughter of unarmed people or of women and children and no indiscriminate repression. Although it was necessary to destroy the walls in the oasis and everything that could shelter the rebels, this was not done until the non-combatants had been removed. He says that the Arabs, on the other hand, were guilty of shocking atrocities, citing the case of the two companies of Bersaglieri, who lost 300 men and had only 14 wounded, as indicating that the wounded must have been massacred. The reports on the subject were very conflicting. Eye witnesses testified to the butchery of unarmed Arab men and boys in circumstances of shocking inhumanity. Others published communications completely exonerating the Italian troops.

PROGRESS OF THE CAMPAIGN. During the engagements of October 23-25, the Italians were reported to have lost 374 killed and 158 wounded. Conflicting reports were published in the last week of October concerning an attack in force by the Turks on October 26, each country claiming the victory. According to the Turkish account the Italians had been completely routed. From Italian sources, on the other hand, it appeared that the conjoint attack of the Turks and Arabs on October 26 had failed and that the Italians had made a successful counter attack. The Turks made another attack on October 28, and, according to the Italians, were again repulsed. The Italians were compelled to draw in their lines of defense, abandoning the forts to the east of the town, but on November 7 they recovered them from the Turks. On December 5 an Italian success was reported, by which they gained possession of the oasis. Meanwhile, during November, they had established their control over the towns on the coast. At the close of the year the situation seemed favorable to the Italians, who were apparently in a fair way to hold the country against the Turks, though its subjugation promised to be a long and tedious task.

INTERNATIONAL ASPECTS. There were many vigorous protests in the European press against Italy's course. As the war began both Germany and Austria-Hungary had appealed to Italy, their ally, and to Turkey, but in vain. In Italy itself a number of the Socialists condemned the action of their government, but the party was divided on the subject (see **SOCIALISM**) and public opinion generally favored the war. In Turkey the situation of the government was embarrassing. On the one hand its foreign advisers urged it not to make reprisals, but to accept the situation. On the other, a strong patriotic element opposed surrender and demanded a policy of guerilla warfare in Tripoli (see **TURKEY, History**). During the first two weeks of October there was still hope in the foreign cabinets that mediation might restore peace. In Germany especially there was much

talk of a settlement of the dispute. Overtures to that end were made by Germany, and apparently by the other powers, but it seemed that secret understandings between certain of the powers added to the difficulty of such an adjustment. On November 5 the Italian government formally proclaimed the annexation of Tripoli and Cyrenaica. From the first Turkey had appealed to the other powers against the conduct of Italy, but at the close of the year there seemed no other solution than acquiescence in the Italian conquest and acceptance of the indemnity which Italy offered. The other powers were seeking to induce the Ottoman government to yield on these terms.

TURKESTAN. See EARTHQUAKES; IRRIGATION.

TURKEY, or the OTTOMAN EMPIRE. An empire possessing extensive territories in southwestern Europe, western Asia, and northern Africa. Nominally subject to Turkey are Samos, Crete, and Egypt (qq. v.). Capital of the empire, Constantinople.

AREA, POPULATION, ETC. Exclusive of the nominal dependencies, the area and population of Turkish possessions appear in the following table:

	Sq. miles	Population
Total Turkey in Europe	65,367	6,130,000
Asia Minor	193,600	9,089,000
Armenia and Khurdistan	72,000	2,471,000
Syria	114,600	2,890,000
Mesopotamia	131,700	1,398,000
Arabia	170,300	1,050,000
Total Turkey in Asia	682,200	16,898,000
Tripoli and Bengazi	405,800	1,000,000
Total empire	1,153,300	24,028,000

Turks, Greeks, and Albanians compose about 70 per cent. of the population in European Turkey; in Asiatic Turkey there are Turks, Arabs, Greeks, Kurds, Circassians, Armenians, etc. Of the total population some 16,000,000 are Mohammedans and about 5,000,000 are Christians of the Roman, Greek, and other churches. Important cities of European Turkey are Constantinople (942,900 inhabitants without and 1,106,000 with suburbs); Saloniki (144,200); Adrianople (125,000); Monastir (50,000); of Turkey in Asia—Smyrna (285,000); Damascus (200,000); Beirut (185,000); Aleppo (135,000); Bagdad (125,000); Trebizond (100,000).

Education, in the hands of the Mohammedan priesthood, is totally inadequate.

PRODUCTION. Agriculture is carried on by primitive methods. The wheat produced in 1910 (in 20 provinces and sub-provinces) was 44,845,254 quintals; rye, 4,772,825; barley, 29,004,763; oats, 4,477,779; corn, 11,245,921. The annual output of olive oil has been estimated at about 750,000 quintals; about 150,000 quintals are exported, 150,000 are consumed by the soap factories, and the remainder by the home market. The increased cost, however, has led to the substitution of large imports of animal fats and other oils. Figures for 1909-10 tobacco crop are lacking; but exports to Egypt amounted to 8,000,000 pounds and to other countries to 69,822,834 pounds. The opium yield was about 10,000 cases, of extra quality. Other products are figs (from Smyrna), raisins, wine, nuts, canary seed, and linseed. Cotton is raised in increasing quantities. Oriental rug

factories are being established to supply the world demand; Constantinople continues to be the main centre of distribution. Wool and mohair are exported.

The abundant mineral wealth of the country is undeveloped. Transportation is inadequate, and labor is not plentiful. Coal is mined (654,118 tons in 1909), as well as phosphate of lime, copper, zinc, iron, silver, gold, antimony, etc. Salt is a government monopoly.

COMMERCE. Figures for the trade of the Ottoman Empire are far from reliable. The returns from countries of origin and destination all show wide differences when compared with Turkish returns, the Turkish export statistics being much too low. Later figures than for the year ended February 28, 1909, are unavailable, the imports for that year being reported at £T31,432,230 and the exports at £T18,439,070 (1905-6, £T31,366,020 and £T19,672,360). The main articles of import are cottons (£T4,090,000 in 1905-6), sugar (£T2,640,000), cereals, etc. (£T1,560,000), linen (£T1,045,055), yarn (£T1,470,000), woollens (£T1,300,000), rice (£T1,077,243), petroleum (£T1,037,198), coffee (£T946,570). Exports are raw silk and cocoons (£T2,930,000), raisins (£T2,350,000), cereals, etc. (£T1,880,000), mohair (£T914,000), figs (£T902,279), coffee (£T889,004), opium (£T729,127), skins (£T730,000), valonia (£T625,224), vegetables (£T580,000), minerals (£T554,082), fruits (£T550,000), carpets (£T546,050).

The countries of origin and destination are as follows, with the value of their trade in 1908-9 in thousands of pounds Turkish (£T1= \$4.40):

	Imps.	Exps.		Imps.	Exps.
Great Brit.	9,413	5,187	Bulgaria	1,356	568
Aus.-Hun.	4,075	2,478	Rumania	1,262	384
France	3,371	3,684	Egypt	1,163	1,657
Russia	2,494	5,749	Netherlands	634	251
Germany	1,938	1,150	Servia	603	99
Belgium	870	174	Persia	554	94
Greece	396	436	U. S.	411	703

There entered at the ports of the empire, in 1905-6, 47,265 steamers (44,257,892 tons) and 129,796 sailing vessels (2,293,977); at Constantinople, in 1908, 14,709, of 13,261,446. Merchant marine (1911), 120 steamers, of 66,878 tons, and 963 sailing vessels, of 205,641.

COMMUNICATIONS. Of the railway lines (6558 kilometers) open in 1909, 1994 kilometers were in European Turkey, 2372 in Asia Minor, and 2192 in Syria. The foreign roads, with the exception of the Aidin line (English), have a kilometeric guarantee from the government.

Railway lines under construction are the Bagdad line, 1820 kilometers long, beginning at Eregli, passing through Aleppo, and ending at El Khalif (German). Aidin line (British). Smyrna-Kosbat line, 200 kilometers long, running as far as Panderma (French). Tripoli-Homs line, 102 kilometers long (French). The Hodeida-Sanaa line was begun March 2, 1911, when Gen. Izzet Pasha cut the first sod. Other lines were projected, but the war will probably interfere with plans for such work in the near future. A French company has been awarded a contract to build and repair about 9000 kilometers of public roads in the various vilayets of the empire, the work to be completed at end of 1913; cost of construction, about 70,000,000

TURKEY IN EUROPE
SERVIA, BULGARIA, ROUMANIA,
MONTENEGRO
AND
GREECE

SCALE OF STATUTE MILES
 0 10 20 40 60 80 100 120 140 160

SCALE OF KILOMETERS
 0 20 40 60 80 100 120 140 160

Important towns are shown in heavy face type
 Railways are shown in heavy face type

The map shows the following countries and regions: Turkey (in pink), Bulgaria (in orange), Roumania (in light green), Montenegro (in red), Greece (in yellow), Serbia (in light blue), and Eastern Roumelia (in light green). Major cities like Constantinople, Sofia, Bucharest, and Athens are marked. The map also shows the Black Sea, the Aegean Sea, and the Bosporus. The Balkan Peninsula is clearly delineated, with various mountain ranges and rivers shown. The map is oriented with North at the top.

Railways shown thus

francs. Telegraph lines (1909), 45,466 kilometers; wires, 76,738; number of offices, 1095.

FINANCE. The piastre (worth about 4.4 cents) is the monetary unit; there are in one pound Turkish 100 piastres. Estimated revenue 1910-11, £T25,848,332; 1911-12, £T26,819,101. Estimated expenditure 1910-11, £30,270,246; 1911-12, £T36,233,184. The receipts as estimated in 1911-12 were £T13,552.11 from direct taxes, £T5,359,973 from indirect taxes, £T3,438,080 from monopolies (salt, tobacco, and gunpowder), £T1,277,355 from stamps, etc., £T893,871 from tribute (Egypt, Cyprus, Mount Athos, and Samos), £T793,636 from domains, £T239,587 from revenue-earning administrations, £T1,264,488 various. Expenditure: £T14,687,625 for finance and public debt charges; £T1,961,933 for public safety and gendarmerie; navy, £T1,682,716; public works, £T1,553,866; grand-vizierate, council of state, and interior, £T1,415,299; war, £T9,491,574; public instruction, £T994,481; etc.

The public debt stood March 14, 1911, at £T119,742,859. A loan of £T11,000,000 was raised in 1910.

ARMY. Military service in Turkey is compulsory for all Mussulmans, who are liable to serve in the Nizam, or regular army, the Redif, or Landwehr, and the Mustafiz, or Landaturm. Christians, and certain other sects, may pay an exemption tax, while from various parts of the empire such nomadic troops as the Arabs fail to furnish recruits, and the Kurds are apt to avoid military service, which consequently falls heavy and mainly upon the Osmanlis or Turks proper. The new organization adopted in 1910 was being carried out in 1911. This provided for a regular army consisting of 14 army corps grouped in 4 army inspection commands, and of 6 independent divisions, of which 3 are under the second army command though not included in any army corps, while 3, Tripoli, Assyr, and Hedjaz, are entirely independent. In all, there are 43 regular divisions, varying in composition, but in time of peace those of the first class consist of 3 infantry regiments of 3 battalions each, 1 rifle battalion, 1 company of mounted infantry, 1 regiment of field artillery, with 619 batteries. One of the 3 battalions of 1 regiment is only a "cadre" unit, so that on the peace basis there are 17 active battalions in a division, and on a war footing there are 10. It will be apparent that the principle underlying the organization of the Turkish army is of groups of three, 3 battalions making a regiment, 3 regiments a division, and 3 divisions making a corps. In fact, the normal organization of an army corps consists of 3 divisions of infantry, 1 regiment of rifles, 1 brigade of cavalry, 1 battalion of heavy howitzers, with 4 companies, each of 2 battalions of mountain artillery, 1 battalion of engineers, 1 telegraph company, and 1 train battalion. In the 10th, 11th, 12th, and 13th army corps there are but two divisions of infantry. The cavalry is organized in brigades, one of which is essential to each army corps, while the field artillery is organized in brigades, which consist of 2 regiments of three 4-gun batteries each. The organization of the Turkish army, which is the work of Field Marshal von der Goltz, is unique in that the infantry brigade formation was abolished, and there is no unit in the command between the division and the regiment, leading perhaps to difficulty of control for the

commander of a division in active operations. On the other hand, for limited operations the new plan was thought well suited to the Turkish troops. The total strength of the army was estimated in 1910 as follows:

	Peace	War
Infantry	150,000	975,000
Cavalry	21,000	25,000
Artillery:		
Men	35,000	45,000
Field guns	1,320	1,600
Machine guns	110	572
Other arms	25,000	30,000
Other trained men available for war		100,000
Total personnel available	231,000	1,175,000

These figures probably held good in 1911, but it must be borne in mind that this large force is very widely distributed throughout the Turkish empire, and many of the troops were in Asia Minor.

The Hamidieh, or native cavalry, was reorganized, the resources of the country not having permitted the formation of the 65 regiments as had been decided. The new organization was to comprise 24 regiments of 4 or 5 squadrons, and 1 independent squadron. These 24 regiments were separated unequally in 4 divisions as follows: Erzerum, First Division, of 6 regiments and 1 squadron, Kara-Kilissé, Second Division, of 8 regiments; Ardjisch, Third Division, of 5 regiments; Mardin, Fourth Division, of 5 regiments.

NAVY. At the outbreak of hostilities with Italy, the navy included 4 battleships of 35,000 aggregate tons; 3 armored corvettes, of 7600; 2 protected cruisers, of 7000; 2 torpedo cruisers, of 1550; 1 torpedo cruiser, of 900; 2 torpedo dispatch boats, of 1300; 9 torpedo-boat destroyers, of 3970; 15 first-class torpedo boats, of 2000. In course of construction, 1 protected cruiser. Reported ordered were 2 battleships, of 23,000 tons each, to have a speed of 21 knots, and 10 13½-inch guns. Early in 1911 3 merchant steamers purchased from the North German Lloyd Company were delivered—the *Oldenburg*, the *Darmstadt*, and the *Roland*. They will be used as armed transports.

The British officers whose activity as instructors in the admiralty ceased at the beginning of the war were reported to have resumed their duties, but on a basis which relieves them of any implication of being concerned in the hostilities. The personnel includes 30,000 officers and men.

GOVERNMENT. Turkey is a constitutional hereditary monarchy. The sovereign (in 1911, Mohammed V.) is both temporal and spiritual head. The fundamental laws are based on the precepts of the Koran. The succession to the throne rests in the senior male descendant of the house of Osman, sprung from the imperial harem. The sultan does not marry; but all children born in the harem, whether of free or slave women, are counted legitimate and of equal lineage. A grand vizier, assisted by a cabinet of ministers, is appointed by the sultan. The legislative body consists of a senate and a chamber of deputies. The empire is divided administratively into vilayets, sanjaks, kazas, nahies, and karies. The sheikh-ul-Islam is the head of ecclesiastical affairs under the sultan.

Ministerial changes occurred frequently in 1911. The grand vizier, Hakki Pasha, resigned

at the beginning of the Turco-Italian War, to be succeeded by Said Pasha, the then president of the Senate, a man over ninety years old. He had been, during the reign of Abdul Hamid, seven times grand vizier. Upon the defeat in December of his amendment to the constitution, he with his entire cabinet resigned; but he was summoned almost immediately to form a new cabinet—his ninth. The cabinet which was constituted October 4 and which resigned December 30, 1911, was composed as follows: Grand Vizier (premier), Said Pasha; Sheikh-ul-Islam, Kiasim Effendi; Foreign Affairs, Assim Bey; Interior, Djelal Bey; Justice, Memdough Bey; War, Mohammed Shevket Pasha; Marine, Khurshid Pasha; Finance, Nail Bey; Pious Foundations, Adurrahman Bey; Commerce and Public Works, Khulussai Bey; Instruction, Khaïri Bey; Agriculture, Mines, and Forests, Kirkor Sinapian Effendi; Posts, Telegraphs, etc., Ibrahim Soussa Effendi.

HISTORY

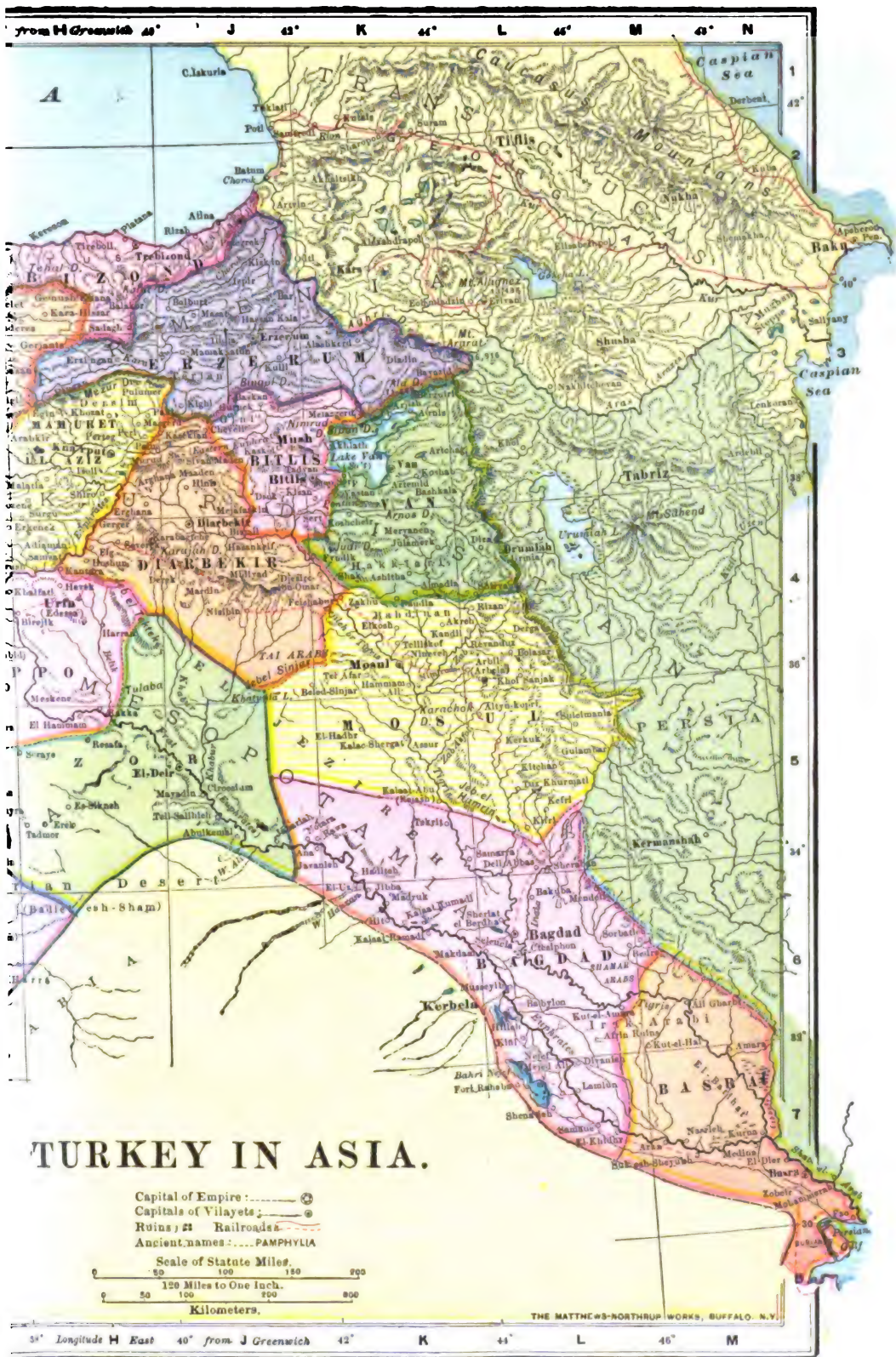
The year 1911 was marked by a foreign war and by serious internal disturbances. The outstanding event was the TURCO-ITALIAN WAR, an account of which will be found under that title. Other aspects of Turkish foreign affairs are treated under the titles of the countries to which they relate. For Turkey's part in the railway projects of the Near East, see GERMANY, *History*, paragraph on *Bagdad Railway*. For the relations with Greece, see CRETE, *History*; see also concluding paragraph below on *Other Events*. The present article is confined chiefly to internal affairs, including the two threatening revolts at opposite ends of the empire, that in Yemen and that in northern Albania, and the dissensions in the Young Turk party.

THE YEMEN REVOLT. At the beginning of the year a revolt broke out in Yemen under a fanatical chief named Said Idris and the Imam of Sanaa. During January it assumed formidable proportions and the Turkish troops in the region were thoroughly reinforced. Fighting occurred in January on the Hedjaz Railway and a defeat of the Bedouin was reported, but in the following month an Arab force, 15,000 strong, was reported to be advancing. At the end of February a repulse at Menakha of 2000 men under the imam by Turks and friendly Arabs was reported. The loss of the rebels was placed at 130, and of the government troops at 161. The retreat of the imam was reported in March, and by April 15 the Turks were thought to have the situation well in hand. At that time the imam was reported to have lost very heavily. But in June news came of a serious reverse to the Turks near Gezam, where the rebel Arabs surprised four battalions, inflicting a loss estimated at 1600, including 1100 killed, and driving the remainder in disorder. Upon receiving the news the government decided to send eight more battalions of the Redif and four of regulars from Adana. The town of Ibha was besieged by Said Idris and the important city of Sanaa by the imam, and the prestige of the Ottoman government was seriously threatened, but with the arrival of the reinforcements, conditions improved. On July 1 Ibha was relieved and by September 1 it was reported that all the sheikhs had submitted. The campaign was conducted by Izzet Pasha.

THE ALBANIAN REVOLT. A still more threatening revolt broke out among the tribesmen of

northern Albania, who in December, 1910, had been reported pacified. At that time the grand vizier announced that the measures for disarmament which followed the revolt of 1910 were completed and that the troops were being recalled. Soon afterwards, however, a number of the Catholic Malissori demanded the reopening of the native schools and the use in them of the native language, and refused to lay down their arms until these terms were granted. They took the offensive at the end of January and fighting of a serious nature was reported in March on the Montenegrin frontier, where they were said to number about 3000 and to have captured several blockhouses. It was soon afterwards learned that they had seized Tuzi and were threatening Skutari and that the regular troops in the region were hard pressed. Torgut Shevket Pasha assumed command of a large relieving force in March and planned an advance in two columns which should ultimately hem the rebels on all sides in an "iron circle." The news came from official sources and the exact nature of the operations could not be ascertained, but the objects of the campaign were not gained till after four months, during which the Turks were reported to have met with several serious reverses. In the middle of April the Turks were reported to have occupied the chief strategic points in the disturbed region, but at the end of April it was announced that the Turks had met with a serious repulse at the hands of the Malissori, and that their attack on the insurgent position at Dechitch had been repulsed with heavy losses. Another Turkish reverse was reported at the beginning of May.

Reinforcements were rapidly poured into Saloniki in May, and it was reported that the fighting in the west was continuing with doubtful results. The Albanian clergy refused the request of the Turkish authorities to try and induce the natives to submit. By that time it was estimated that the fighting force of the revolutionaries was 20,000. In May there were further reports of fighting in Albania, but the news was indefinite. The Turkish troops were at that time on the Montenegrin frontier and the Montenegrin government was led by the threats in the Turkish papers to appeal to the powers for a guarantee of its territory against Turkish attacks. Torgut Shevket Pasha issued a proclamation in the middle of May warning the people that extreme measures would be taken against all those who had not returned to their villages and surrendered their arms within five days. On June 4 the Mirdite tribe, one of the most powerful in the disturbed district, was said to be in revolt. It occupied inaccessible mountain regions, and had been independent for centuries, but later it was reported that the Mirdites had been driven out of the Alessio fortress. Progress in the Turkish campaign was reported early in June when the Turks were proceeding against the Malissori tribe. Their plan of campaign was to divide the insurgent force and cut off communications with Montenegro. On June 12 it was announced that the revolt was near its end, Torgut Shevket Pasha having reached the Shem River in his campaign against the Malissori. The two invading Turkish columns met, thus gaining the object of their campaign. The official statement of the terms offered to the rebels was as follows: Ten days for the Malissori rebels to surrender, in which case no



judicial proceedings would be taken against them. The government gave assurances that it would guard the welfare and prosperity of the region and the sultan was to give a sum of money to repair the damage done by the troops.

Despite the proclamation of an armistice, fighting was reported in the disturbed district in June, and it was said that the Malissori tribe was in a position by no means untenable. Nor had the Mirdite tribe submitted. And though an official statement declared the campaign against the Albanian tribes over on June 29, hostilities continued and in the middle of the following month a Turkish force under Adhem Pasha suffered a severe reverse, falling into an ambush and losing about 200 killed and wounded. Peace finally came about largely through the efforts of King Nicholas of Montenegro.

MONTENEGRO AND THE ALBANIAN REVOLT. The Montenegrins sympathized strongly with the Malissori, many of whom took refuge on Montenegrin soil. Much of the fighting occurred on the border and the Turks complained that the Montenegrins joined the Malissori in their attacks. Early in the revolt the Turkish foreign minister threatened to take action against Montenegro if it continued to aid the insurgents. In May the Turks reported that Montenegrins were fighting in the ranks of the Malissori on several occasions. Turkish threats of reprisal became so vigorous that King Nicholas appealed to the powers for protection, as noted above. Meanwhile reports of the sufferings inflicted on non-combatant Malissori had aroused the sympathy of foreign nations and King Nicholas bestirred himself on their behalf. The insurgents who had taken refuge in his territory demanded certain concessions, including the right to retain their arms and compensation for the damage done to their property. King Nicholas sought to bring all possible influence to bear to induce the Turks to grant these demands. At length the Turks showed themselves inclined to conciliation. In the middle of July Torgut Shevket Pasha was superseded on the ground of illness, by Abdullah Pasha, who offered the insurgents the guarantee of all their local rights and promised them a good government, a general amnesty, and the expenditure of £50,000 by the government in the repair of damages.

On July 20 King Nicholas of Montenegro summoned the representatives of the great powers to a conference at the palace at which he made certain proposals for the arrangement of peace between the Turks and the Albanians. An armistice was declared and the Turkish government agreed to terms of peace, which conceded the demands of the rebels, including the right to retain their weapons and compensation for the destruction of their dwellings.

By August 12 it was announced that the Malissori had all returned to their homes, with the exception of one section of the tribe, but there were reports soon afterwards of fighting in southern Albania.

POLITICAL CONDITIONS. Early in the year there were rumors of dissensions in the Young Turk party, which through its Committee of Union and Progress, had carried through the revolution of 1908 and defeated the counter-revolution of the following year. There were bitter complaints of the secret and tyrannical powers wielded by the Young Turk committee

at Saloniki, which was said to be the real, though unauthorized head of the government. The Saloniki committee was represented in Constantinople by a parliamentary committee of 160 members, which controlled the majority in the lower house. Many ministerial changes took place during the year and a large proportion of these were attributed to the so-called Conservative Young Turk element of the parliamentary committee at the capital, who had turned against the Radical Young Turks of the Saloniki committee. Jalaat Bey, minister of the interior, and Emrullah Effendi, minister of education, resigned in February, and the latter's successor, Ismail Hakki Bey, and Djavid Bey, minister of finance, retired in May. This was regarded as a triumph for the committee insurgents within the cabinet who were supported by active public sentiment outside Parliament. The fall of Djavid Bey and the split in the committee party greatly agitated the people of Macedonia. The Parliamentary party in the chamber drew up a new programme, comprising ten articles, on April 22. Among its features were the following: Deputies shall not engage in concession business or similar affairs in private interest, or accept any official or cabinet post unless as a result of a party vote comprising a two-thirds majority of the members in Parliament; respect for the laws on the part of the ministry; coöperation on the part of the party for union of races of the empire; the development of Occidental civilization and progress, with due regard to religious and national usages and public morals; respect for the historical traditions of the empire; legislation for the appointment and dismissal of functionaries; modification of certain articles of the constitution dealing with certain rights of the throne and Khalfate; and opposition of the party to societies organized with secret objects.

On July 10, Zeki Bey, an official of the public debt administration, was shot and killed. This was regarded as a political murder, prompted by the Saloniki party, and caused considerable excitement. He had been arrested during the disturbances of July, 1909, but was acquitted by a court martial. At the time of the split in the committee party he had founded a journal, which attacked the Saloniki committee vigorously. Several prominent men were arrested on suspicion of complicity in the murder, which was held to be the work of extremists who resented his political activities, and the trial which was going on in the latter part of the year brought to light some discreditable political intrigues.

In the closing months of the year political conditions were complicated and obscure, but it appeared that at a meeting of the committee in the autumn the Moderate or Conservative element were unsuccessful in carrying their measures, and that the Radical policy of assimilating the subject races would continue. Rumors of the weakness of the Saloniki committee persisted and there were signs of its growing unpopularity, but there was no definite evidence of change.

THE SAID GOVERNMENT. On the outbreak of war with Italy, the Hakki ministry, which was sharply criticised for lack of foresight and ineffective preparations, resigned, and Said Pasha, president of the senate, became grand vizier (October 4). Parliament was opened on October 14. The speech from the throne set forth the causes of the war and the steps taken by the government to secure the mediation of the

powers. A memorial was presented to the speaker by the deputies of Tripoli and Cyrenaica, demanding the impeachment of Hakki Pasha and his colleagues for inefficiency in safeguarding Tripoli. Some of the specific charges were: Diminution of the Tripoli garrison; delay in recruiting local militia; failure in sending rifles for the use of the militia; appointment of officials ignorant of Arabic; failure to anticipate the Italian preparations for war, or to give orders for local defense, etc. The grand vizier outlined the government policy on October 18. It aimed, he said, to improve the relations of Turkey with all foreign countries, especially the Balkan states. A committee was appointed to investigate the question of the previous government's alleged neglect of the defenses of Tripoli. A law was passed taxing Italian imports since the declaration of war at 100 per cent. ad valorem. The Said government seemed at first insecure, but it soon secured a vote of confidence on the understanding that it would maintain Turkish sovereignty in Tripoli. Public opinion was strongly in favor of the expulsion of Italian residents, but the government refused to take this measure.

OTHER EVENTS. Reports that torture had been used to extort a confession from Dr. Riza Nur, who had been arrested in the latter part of 1910, led subsequently to a debate in the chamber which also turned on the treatment of political prisoners generally, but by a vote of 96 to 73 the demand for a commission to inquire into the matter was negatived. At the end of February fighting was reported on the frontier between the Turks and Greeks, and also between Turks and Bulgarians in Macedonia. The trouble on the Turco-Greek frontier led to an agreement between Turkey and Greece for the appointment of a commission of inquiry. Questions relating to the Black Sea frontier were referred to a mixed commission appointed by the Turkish and Bulgarian governments. In a convention signed about March 15, the disputed points concerning a large part of the frontier were regulated. In July the Ottoman Bank negotiated through French capitalists a loan of about \$175,000,000 of whose proceeds more than half were to be applied to the building of the Danube-Adriatic and South Albanian railways. British capitalists secured a concession in August for the building of ports at Trebizond and Samsun. Two serious disasters of the year were the Stamboul fire, which destroyed about 3000 houses, leaving nearly 50,000 people homeless, and the outbreak of the cholera in the summer months, causing over a thousand deaths in Constantinople and showing an even greater mortality in the interior. Attention was drawn to the outrages in the Monastir district by the murder of a Frenchman who was mistaken for a Bulgarian voyvoda. The trouble was said to be due, on the one hand, to Turkish insults, and on the other, to Bulgarian and Greek reprisals. The Turks were accused of murdering Greeks and Bulgarians, and the latter replied by similar acts. The procurer-general at Monastir had been murdered, and terrorists were said to be active. Toward the close of the year there were many signs of unrest in Macedonia and early in December a number of outrages took place which indicated the work of terrorists. A part of a train was destroyed on the line between Saloniki and Seres, and three railway employees were killed. On the same day another

explosion took place between Saloniki and Uskub, and a more serious one in a mosque at Ishtib, the latter causing the death of twelve persons and the wounding of twenty, according to first reports. Great bitterness was caused in Greece by the murder of the Greek bishop of Grevena, and two priests and two attendants, who were found with their throats cut, outside the town. Some attributed the murder to the instigation of the Young Turk committee.

TURKS AND CAICOS ISLANDS. A dependency of the British colony of Jamaica; two groups of West Indian islands, having an area of 169 sq. miles and a population (census of 1911) of 5615. Principal island, and seat of government, Grand Turk, with (1911) 1681 inhabitants. The salt industry yields some 1,800,000 bushels annually. The imports and exports in 1910 were valued at £27,915 and £24,461 respectively; the revenue and expenditure were £8646 and £6827. A commissioner and acting judge (1911, F. H. Watkins) administers the dependency.

TURPENTINE, ARTIFICIAL. See **CHEMISTRY, INDUSTRIAL.**

TUSCALOOSA. See **ALABAMA.**

TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE. An institution for the training of colored young men and women at Tuskegee, Ala., founded in 1880 by Booker T. Washington. The number of students enrolled in the various departments of the school in 1911-12 was 1702. The faculty numbered 183. There were no notable changes in the faculty during the year and no noteworthy benefactions were received. In addition to its class-room and technical work, the institute engages widely in what may be termed extension work. This includes the annual negro conference with its numerous branches, publication of a weekly farm paper, a short course in agriculture, together with farm demonstration work supported by the United States government and the general education board, a county ministers' institute, and a national negro business men's league. There is great need for new buildings for the institute and plans have been drawn for these. Their construction awaits only the receipt of adequate funds. The amount of productive funds is about \$2,000,000. The equipment is valued at \$1,000,000. The president of the board of trustees is Seth Low, and the principal is Dr. Booker T. Washington.

TUTTLE, HIRAM AMERICUS. An American public official, formerly governor of New Hampshire, died February 10, 1910. He was born in Barnstead, N. H., in 1837. He was educated in the public schools and at Pittsfield Academy. After graduation he became a clerk in a clothing store and afterwards went into the same business for himself. In 1873-4 he was a member of the State House of Representatives, and from 1879 to 1883 was a member of the executive council. He was elected governor in 1891, serving until 1893. He had large real estate and lumber interests and was director in several financial institutions in New Hampshire.

TYPHOID FEVER. The phase of the typhoid problem which occupied the greatest attention during 1911 was prophylactic vaccination. The value of this measure having been definitely determined in the United States army by the voluntary inoculation of 7000 officers and enlisted men, General Wood made it compulsory. Before the end of the year the entire

army of 76,000 men was vaccinated with the "typhoid prophylactic" prepared by Major Russell of the Army Medical School in Washington, Secretary of War Stimson himself setting the example. Men over 45 years of age, and individuals known to have had an unmistakable attack of the disease, were exempted. The operation is similar to that of vaccination against smallpox, and causes little inconvenience, the soldier losing, as a rule, not a single day from duty. The subject is regarded as of the greatest importance by the army sanitarians. It was pointed out that in the Spanish War our troops developed 20,738 cases of typhoid fever, and that more than four-fifths of the total mortality was due to this disease. By way of contrast, the 16,000 troops recently mobilized in Texas during the Mexican revolution developed only one case of typhoid during the three months they were exposed to heat, dust, and flies. It is suggested that tourists, vacationists, physicians, nurses, and orderlies in hospitals—in short, all who are liable to contract or carry the disease—should submit to prophylactic vaccination.

Of equal importance, and perhaps greater interest to the average citizen, is the use of vaccines in the treatment of typhoid fever after it has developed. Meakins and Foster inoculated 41 patients in various stages of the disease, with very encouraging results. The average duration of fever was reduced by about nine days. The earlier vaccination was done, the better were the results obtained. In 17 cases vaccinated in the first two weeks of illness the average duration of fever was 17 days. A more striking illustration of the influence of the vaccination was apparent when an estimate was made of the number of days of fever after the treatment was begun. In 26 patients the temperature returned to normal in an average of five days after inoculation. Complications of a severe character, such as hemorrhages, perforation, cholecystitis, otitis media, periostitis, and phlebitis occurred in only 5 per cent. of the vaccinated cases; relapses were very infrequent, and the mortality was considerably reduced.

The problem of the bacillus "carrier" seems likely to be solved by the vaccination treatment. No certain method of curing these chronically infected individuals has as yet been discovered. While they are themselves in apparently perfect health, they continue for months to discharge large numbers of bacilli, and are a menace to all who live with them. It has been found that vaccination repeated at intervals has proved efficacious in eradicating the bacilli from several such "carriers" and the method promises to have an extensive use in the near future.

Albert has studied eighteen epidemics of typhoid traceable to "carriers." He finds that probably 5 per cent. of all typhoid patients become chronic "carriers"; 3 per cent. continued to excrete typhoid bacilli for more than one year after recovery; 25 per cent. of all chronic typhoid bacilli "carriers" have never had typhoid; one in every thousand of the general population is a "carrier," and 10 per cent. of all cases of typhoid are traceable to "carriers." Whenever there are household epidemics or a series of outbreaks of the disease in a given locality or an institution or among soldiers in the field, a "carrier" is the most probable source of infection.

Lumsden and Anderson published in December the results of what is "probably the most

patient and elaborate study of the epidemiology of typhoid fever hitherto made in the United States." This is the final report on the occurrence of causation of typhoid fever in the District of Columbia from 1906 to 1911. The investigators found that the disease cannot be traced to a single source, but that many factors influence its spread. The authors are convinced that the greater part of the typhoid infection in Washington is distributed through milk, green vegetables, and other foods, and by fingers and flies. Some of the infection is unquestionably derived from infected persons outside of the city, but the bulk of it is spread from the dejects of typhoid fever patients and bacillus "carriers" within the city. For a full account of this most important investigation, see Bulletin 78 of the Hygienic Laboratory, United States Public Health and Marine Hospital Service, entitled *The Origin and Prevalence of Typhoid Fever in the District of Columbia*, by L. L. Lumsden and J. F. Anderson.

UGANDA PROTECTORATE. A British East African possession, covering an estimated area of 117,681 sq. miles and having between two and three million inhabitants. The British headquarters is Entebbe; the native capital, Mengo. The chief products and exports are ivory, skins, chillies, cotton, rubber, and ghee. The export of cotton has increased from 43 tons (£1089) in 1905-6 to 4148 tons (£165,412) in 1910-11. Imports (1910-11), £347,823 (cotton cloths, prints, groceries, etc.); exports, £306,609. A railway (between 40 and 50 miles) is in process of construction between Jinja (in Busoga) and Kakindu (below the Nile rapids). The so-called Uganda Railway lies wholly in the British East Africa Protectorate; connecting Mombasa, on the coast, with Port Florence, on Victoria Nyanza (584 miles). There are steamers on lakes Victoria, Albert, and Kioga. There is a telegraph line to Mombasa. The revenue and expenditure for 1910-11 are given at £191,094 and £252,347. Daudi Chua is king of Uganda. The governor and commander-in-chief is F. J. Jackson, appointed 1911. Vigorous measures are being taken by the administration against sleeping sickness, which has destroyed thousands of the population.

UHDE, FRITZ VON. A German painter, died February 25, 1911. He was born at Wolkenburg, Saxony, in 1848. His artistic studies were begun at the Dresden Academy in 1866, but finding the spirit of that institution uncongenial, he entered upon a military career and served in the army until 1877, when he again took up painting, giving his attention especially to the old Dutch masters. After unsuccessful attempts to gain admittance to the studios of Piloty and Diez in Munich, he was induced by Munkácsy in 1879 to remove to Paris, where he worked for a short time under this master. His principal studies, however, were from nature and from Netherland models. His first notable work was "The Family Concert" (1881). The new coloristic principles which he had meanwhile adopted are evident in the "Arrival of the Organ Grinder" (1883). After this date he turned to religious subjects and his "Suffer the Little Children to Come unto Me," exhibited at Munich in 1884, made a deep impression. This was increased by the paintings which followed in succeeding years, "The Last Supper" (1897), and "Come, Lord Jesus, and be our Guest" (1885). In the same year he produced "Christ

with the Disciples at Emmaus" in 1887, "The Sermon on the Mount"; in 1889, the triptych of the "Nativity," and in 1890, "The Walk to Bethlehem." Uhde gave rise to a complete change in German art by the evolution of his naturalistic conception. He counted among his followers most of the younger generation of painters. Among his best known pictures, in addition to those mentioned above, are "The Wise Men from the East" (1896), "The Ascension" (1898), and "Woman, Why Weepst Thou?" (1900).

ULTRA-VIOLET RADIATION. See **ELECTRIC LIGHTING.**

ULTRA-VIOLET RAYS. See **PHOTOTHERAPY.**

UNCINARIASIS. See **HOOKWORM DISEASE.**

UNEMPLOYMENT. UNITED STATES LEGISLATION: (a) *Public Employment Bureaus.* A considerable number of States enacted or amended laws designed to facilitate the finding of work by men seeking it. Indiana and Missouri established free public employment offices and the laws of Massachusetts, Michigan, and Montana with reference to public employment offices were extended. Indiana authorized the establishment of such an office under the direction of the State Bureau of Statistics in each city with 50,000 or more inhabitants. These offices are required to receive applications for all kinds of work, to keep a register of all applicants, to advertise for positions, and to make weekly and annual reports to the Bureau of Statistics. The Massachusetts law was amended by directing the superintendents of the employment offices to receive applications from alien immigrants seeking employment in agricultural labor, and otherwise to promote the distribution of immigrants to farming communities. The Massachusetts commission authorized to investigate the condition and management of employment agencies, public and private, was continued to January 10, 1912. Michigan increased the number of free bureaus from eight to ten. Missouri authorized the commissioner of labor to establish free bureaus in any city of 75,000 or more population. Montana amended its law by requiring first and second class cities to establish such offices, and permitted any other city to do so.

(b) *Private Employment Bureaus.* Illinois authorized a woman investigator of domestic agencies. Indiana required private agencies to pay an annual license fee, educational, professional, religious, or benevolent institutions being exempted in case no fee is charged. Kansas required private agencies to obtain licenses from the director of the State free bureaus, the license fee being \$25 in cities of 20,000 or over and \$10 in other cities. A bond of \$500 is also required to guarantee the observance of the law. Every private agency must keep a register; it cannot charge more than \$1 for registration unless wages exceed \$3 per day, when \$2 may be charged; the fee must be returned if no employment is secured within three days; false notices, promises, and entries are forbidden. Maine placed increased safeguards about the granting of licenses, raised the annual license fee from \$20 to \$25; required the keeping of a register in English; and in various ways limited the scope of private agencies. Minnesota allowed private agencies to extend their dealings to female and clerical help, and classified license fees and bonds according to whether male or

female help is provided. New Jersey transferred the granting of licenses from the mayor to the common council. Oregon passed a very extensive law regarding the licensing of shipping masters and the hiring of seamen. Pennsylvania safeguarded the granting of licenses by additional requirements permitting an agency to retain a fee of fifty cents when an honest attempt is made to secure a position for the applicant.

The *National Employment Exchange* organized in New York City in 1909 under the direction of Jacob A. Schiff and the Russell Sage Foundation published its second annual report in December. This exchange is divided into two departments, the mercantile and the manual. The mercantile department reported that 1331 persons had been placed, and the manual department that 1398 men had been placed. The exchange reported a difficult labor market from its standpoint, since the demand for labor in the city declined during the winter months at the very time when considerable numbers of workers previously engaged in canal construction and other work outside of the city were coming into the city seeking employment.

GREAT BRITAIN. A great deal of consideration has been given to the problem of unemployment by English statesmen and labor leaders in recent years. In no country has the problem been so acute. While the principal trade unions have been able to care for unemployed members in a very efficient manner, the great mass of unskilled laborers suffered great demoralization in the depression beginning in 1907. The first general policy adopted was the creation of a national system of labor exchanges (see below). Then followed in 1911 the creation of a government insurance scheme for the building and engineering trades. (See **WORKINGMEN'S INSURANCE.**) In addition there have been many efforts by the municipal authorities of the principal cities to care for their own unemployed by means of public works. There is still before the country the feasibility of extending the insurance scheme to include a much larger proportion of the workers; and the proposal to divert the unemployed of the cities to the rural communities to engage in agriculture and reforestation. A further constructive policy, which was suggested by the minority report of the poor law commission, was that training establishments be organized for the purpose of increasing the industrial efficiency of the unskilled unemployed.

One of the contentions of the workers made in the winter of 1907-08 was that, when willing, they should be given an opportunity to work. This doctrine was embodied in a bill introduced in Parliament by Keir Hardie in May and known as the Right-to-Work bill. This provided that anyone whose name was registered with a labor exchange might transfer his name to an employment register. When his name has appeared on this register a certain number of days and he has failed to secure work, the local authorities shall either provide work for him or maintain him and his family. The cost was to be divided between local and national budgets. One of the aims of this bill was to compel public works to be carried on at times of unemployment. It did not pass.

Labor Exchanges. Probably the most extensive experiment in the organization of labor exchanges was that begun in Great Britain in February, 1910, when eight-two exchanges were opened. The number of exchanges was gradu-

ally increased until by October, 1911, 239 exchanges were at work. For the administration of the system the country is divided into ten divisions in great Britain and one in Ireland. At the head of each is a divisional inspector. Sub-offices are opened in smaller towns and all of these are in communication with the divisional offices by telephone and telegraph; the divisional officers in turn maintain direct communication with the central clearing house of London. During the first nine months of 1911, 1,197,843 applications of men and women for employment were registered, and 324,270 vacancies filled. Of the applications, 156,361 were in the building trades; 140,586 in transportation; and 106,197 in engineering and machine making. There were 140,894 applications for out-door domestic labor, and 153,779 applications by general laborers. Between 80 per cent. and 85 per cent. of vacancies reported are filled.

One of the most contentious questions involved in the organization of labor exchanges was that raised by the trade unions as to whether the exchanges would be available to employers for the recruiting of strike breakers. There was much difference of opinion even in trade-union circles as to the neutrality of the exchanges during trade disputes. A considerable proportion of the time of the Trade Unions Congress at its annual meeting was devoted to a debate on this question. A resolution condemning the exchanges was carried by a vote of 1,097,000 to 273,000. Nevertheless in some places trade unions were using the exchange buildings for their meetings.

A proposal was made at the imperial conference in London in June, 1911, that the labor exchanges be utilized to recruit labor for the colonies. This proposition was not supported by the representatives from Canada, Australia, and South Africa, and was therefore withdrawn. Canadian opposition was especially strong, on the grounds that Canada prefers to select her immigrants, whereas the proposed plan would transfer the most shiftless and inefficient of British labor to the colonies. Nevertheless, various writers continued to point out that Great Britain was suffering greatly from her crowded slums, due in large part to unemployment, and that millions of acres in the colonies awaited cultivators.

GERMANY. The problem of unemployment has on the whole received most satisfactory solution in Germany up to the present time. The general principle upon which the problem has been attacked there is insurance through the co-operation of the public municipal authorities and the workers; sometimes by means of the trade unions. The following cities have some form of insurance against unemployment: Munich, Dresden, Cologne, Leipzig, Diüsseldorf, Mainz, Strassburg, Lübeck, Rostock, Carlsruhe, Elberfeld, Magdeburg, Cassel, Altenburg, Erlangen, and Wernigerode.

In Cologne the system has been in operation since 1896, when 100,000 marks was voluntarily subscribed by citizens, 25,000 marks was appropriated by the city, and the remainder of the fund ever since has been raised by assessments on insured workers. The fund is administered by a committee consisting of the mayor, the president of the labor exchange, twelve insured workers elected by the insured, and twelve honorary members chosen from prominent citizens.

In order to share in the insurance one must have a regular calling, have been a resident of Cologne for one year, be eighteen years old or over, and have paid a weekly contribution of thirty to forty pfennigs for at least thirty-four weeks. Insured persons out of employment between December 1 and March 1 receive two marks a day for twenty days, after their third day of unemployment, and one mark a day thereafter. Persons in ill health are cared for by the imperial insurance against sickness. In 1909-10 the number of insured was 1957. Of these 76 per cent. were out of work at some time during the winter and were paid 61,934 marks, although the total contributions of all insured was only 23,439 marks.

Similarly in Leipzig a group of private persons began the insurance scheme by a contribution of 100,000 marks. The city government did not contribute on account of socialist opposition; this was due to fear of competition with trade-union unemployment schemes. The insured in Leipzig are divided into four classes according as they contribute 7.5, 10, 12.5 or 15 cents per week throughout the year. Special provision is made whereby all employees of a firm or all members of a society may be insured as a body. The insured is eligible to a benefit of 1.2 marks per week during unemployment, after contributing for 42 weeks. In Strassburg there is direct coöperation between the municipal government and the trade unions. The government adds one mark per day to the benefit of two marks paid by the unions to unemployed members. There is close coöperation between the insurance and employment offices. In addition to the considerable number of municipal schemes the better organized trade unions pay large sums to employed members. Thus in Leipzig alone the trade unions pay their members an average of 5,000,000 marks annually in unemployment benefits. The result is that the worst effects of unemployment are quite uniformly prevented in Germany.

In spite of the fairly successful handling of the problem of unemployment by the municipalities and the trade unions, there is a wide agitation for the inauguration of an imperial scheme of insurance against it. The wider the scope and the greater the number of persons included, the more effective is the application of the insurance principle. Moreover, with an already well-organized system of labor exchanges national in scope, the machinery for testing the labor market, which an insurance scheme requires, is already at hand. See also **WORKINGMEN'S INSURANCE.**

German Labor Exchange. Germany has the most perfect system of labor exchanges of any country in the world. There are about 712 such exchanges in close coöperation by means of telephone and telegraph. In 1910 they registered 3,708,000 men and women. Employers offered 2,208,000 places, of which 1,524,000 were filled. The transactions had doubled since 1904. The railways, which are owned by the government, give low rates to men seeking work. The Berlin exchange is the most important. It has an advisory board of twenty-one members made up of representatives of employers, representatives of unions and apprentices, and members of the industrial court representing the unskilled. The annual running expenses are about \$25,000, of which \$10,000 is paid by the city

and the remainder is supplied by a five-cent registration fee. By the standardization of jobs and of qualities of workers the exchange has enlisted the support of both employers and workmen. The practice has become general for employers simply to telephone the exchange for so many men of a certain class or skill. The Berlin exchange is well housed, having three large apartments for skilled men, unskilled men, and women respectively. Preference is given to married men; and employers prefer union men. It is found that on an average a skilled union man need not wait longer than two weeks for a place. The time of waiting is longer for the unskilled. In close connection with the Berlin exchange is a municipal lodging house, at which from 3000 to 5000 men, women, and children may be lodged and fed every night.

STATISTICS. The British Board of Trade in January, 1911, issued a statement of the percentage of unemployed workers in various countries, based on trade-union reports. The returns for the United States were those published by the Massachusetts and New York labor departments. In the seven years 1903-09 inclusive, the average percentage of unemployed in Germany was 2.2; in France, 9.2; in the United States, 14; in Belgium, 3.1; in Denmark, 10; in Great Britain (ten-year average), 4.8. These statistics must be used with great caution. The fluctuations from year to year were found to be smallest in Germany and greatest in the United States. The statistics for the latter, however, were least comprehensive and representative of any.

UNION COLLEGE. An institution of higher learning at Schenectady, N. Y. The total number of students enrolled in 1911-12 was 340. The faculty numbered 32. Among the changes in the faculty were the following: Dr. George Dwight Kellogg, Ph. D., was appointed to the chair of Latin language and literature, left vacant by the death of Sidney G. Ashmore (q. v.); Morton Collins Stewart was made assistant professor of German. A special graduate course was established, with electrical science as major, leading to the degree of Ph. D. A wireless telegraph outfit and experiment station was set up during the year in connection with the electrical laboratory.

UNITARIANS. A Protestant religious denomination, the distinctive feature of which is the acceptance and adoption of the principles of freedom and progress in religious thought. The administrative body of the church is the American Unitarian Association, which has headquarters in Boston. There are no official statistics of the membership of the denomination, but in 1911 it was approximately as follows: Communicants, 70,542; churches, 482; ministers, 558. The denomination maintains a large number of conferences, unions, alliances, and leagues, organized for the purpose of distributing Unitarian literature and Unitarian thought throughout the world. The church has considerable strength in Great Britain, where there are 375 ministers and 372 congregations. Divinity schools are maintained at Cambridge, Mass., Meadville, Pa., and Berkeley, Cal. The denomination carries on missionary work at many points, among the Icelandic, Norwegian, and Swedish immigrants in the United States. Field secretaries are employed in New England, New York, Canada, and on the Pacific coast. Among the most important of the Unitarian

publications are the *Christian Register*, published in Boston, the *Unitarian Advance*, published in New York, and the *Pacific Unitarian*, published in San Francisco. President of the American Unitarian Association, Rev. Samuel A. Eliot; secretary, Rev. Lewis G. Wilson.

UNITED BRETHREN. See MORAVIANS.

UNITED PRESBYTERIAN CHURCH OF NORTH AMERICA. A Protestant religious denomination which was formed in 1858 at Pittsburgh, Pa., by union of Associate and Associate Reformed churches. According to statistics gathered by the denomination there were in 1911 176,682 communicants, of whom 35,693 were in the foreign missionary fields. There were 1150 ministers and 1112 churches. In the 1402 Sabbath schools there were 195,906 scholars and 15,869 officers and teachers. There were 964 Young People's societies, with a membership of 32,657. The total contributions for all purposes for the year amounted to \$2,610,045. Of this amount \$801,324 was for salaries of ministers, \$957,607 for congregational purposes, \$592,361 for the boards of the church, and \$231,836 for general purposes. The average salary of pastors in the denomination in America was \$1234. Under the auspices of the denomination are six colleges in the United States, one at Assiut, Egypt, and one in the Punjab, India. The theological seminaries are at Allegheny, Pa., and Xenia, O. The property value of these institutions is about \$900,000. The church carries on missions in Egypt, India, and the Sudan. Home missions are maintained among the mountaineers of Kentucky and Tennessee, and among the negroes in Virginia, Tennessee, Alabama, and Mississippi, and the American Indians in the Oregon and Idaho reservations. The leading papers of the denomination are the *United Presbyterian* and the *Christian Instructor*, and there are several other periodicals for Sabbath schools and young people issued from the publishing house in Pittsburgh, Pa. The church is a member of the World's Alliance of Presbyterian and Reformed Churches, the Council of the Reformed Churches in America, and the Federation of the Evangelical Churches in America. An active part is taken in the Men and Religion Movement and general Christian work. The General Assembly meets annually in May.

UNITED STATES. AREA AND POPULATION. The area of the United States, including continental United States and the territories under its jurisdiction, is estimated by the United States Coast and Geodetic Survey at 3,743,344 sq. miles, divided as follows: United States, 3,026,789; Alaska, 590,984; Philippine Islands, 115,026; Hawaiian Islands, 6449; Porto Rico, 3435; Isthmian Canal Zone, 474; Guam, 210; Tutuila group, Samoa, 77. The population of the United States, according to the Thirteenth Census, taken in 1910, is 91,972,266. This includes all non-contiguous territories, with the exception of the Philippine Islands, Guam, and Tutuila, in which the census was not taken. The populations of the different States will be found in the articles on the States.

AGRICULTURE. Statistics relating to agriculture in general will be found in the articles dealing with agriculture and agricultural products. The agricultural production of the different States and the non-contiguous territories will be found under their respective headings.

INDUSTRIES. The industries of the United

States are discussed in general in the articles dealing with those industries, as IRON AND STEEL, COTTON, RAILWAYS, SHIPBUILDING, TEXTILE MANUFACTURES, BOOTS AND SHOES, etc. For matters relating to the operation of manufactures and industries, see TAXATION, TRADE UNIONS, TRUSTS, FINANCIAL REVIEW, etc.

MINERAL PRODUCTION. A summary of the mineral production of the United States in 1910 will be found in the table in the article MINERAL PRODUCTION. The production of different minerals and metals in 1910 and in 1911, so far as available, is given under the respective headings of these articles, as ALUMINUM, COAL, IRON AND STEEL, GOLD, SILVER, ETC.

EDUCATION. For an account of the progress of educational matters in the United States in 1911, see the article EDUCATION IN THE UNITED STATES. For notes of educational development in the different States, see paragraph *Education* in those States.

RELIGION. An account of changes and growth during the year in the various churches will be found in the articles on the respective denominations. See also the summary under the title RELIGIOUS DENOMINATIONS.

FOREIGN COMMERCE

The tables shown below give a summary of the foreign commerce of the United States in the fiscal and the calendar years 1910 and 1911. In Table 1 are shown the total value of the imports and exports for the calendar years 1910 and 1911, with the principal countries of origin. Table 2 shows the foreign imports and exports, with their countries of origin in the fiscal years 1909, 1910, and 1911. Tables 3 and 4 show the chief articles of import and export in the fiscal years 1910 and 1911. From the table dealing with the imports and exports of the fiscal year it will be seen that in the year ending June 30, 1911, the total imports amounted to \$1,527,226,105, as compared with \$1,556,947,430 in 1910. The exports were \$2,049,320,199 in 1911, as compared with \$1,744,984,720 in 1910. Thus, while the figures for imports show a decrease in 1911, there was shown a considerable increase in exports. There were losses in imports from all the grand divisions except Asia, Oceania, and Africa. The imports from Europe declined

from \$806,270,280 in 1910 to \$768,167,760 in 1911. From the countries of North America there was a decrease of over \$100,000 in imports. From the South American countries the imports declined from \$196,164,786 in 1910 to \$182,623,750 in 1911. The imports from Asia and Oceania increased from \$230,255,139 in 1910 to \$243,724,182 in 1911. Those from African countries increased from \$17,489,739 in 1910 to \$27,213,620 in 1911. The exports in the fiscal year 1911 showed an increase in all the grand divisions. To Europe the increase was from \$1,135,914,551 in 1910 to \$1,308,275,778 in 1911; to the countries of North America from \$385,520,069 to \$457,059,179; to South American countries from \$93,246,820 to \$108,894,894; to Asia and Oceania, from \$111,751,900 to \$151,489,741 in 1911; to Africa, from \$18,551,380 in 1910 to \$23,600,607 in 1911.

The foreign commerce of the United States in the calendar year 1911, when compared with that of 1910, shows a considerable increase and a larger total than in any earlier year in the history of the commerce of the country. Imports, while falling below those of 1910 in the earlier months of the year, in the closing period showed a marked increase and differed but little from those of 1910, which made the highest record in the history of the import trade. Exports were larger than in any earlier year, amounting to \$2,092,526,846. The imports were \$1,533,067,130, leaving an excess of exports over imports of \$559,459,716. Considering the great groups of articles, the noteworthy changes were, in the case of imports, a falling off in manufacturers' raw materials and in finished manufactures; and in the case of exports a general increase participated in by all the important groups, foodstuffs, manufactures, and manufacturers' materials.

The exports of manufactures in the calendar year exceeded \$1,000,000,000; those sent to foreign countries amounted to \$964,773,968; to Porto Rico, \$21,860,137, and to Hawaii, \$15,337,758, making a total of \$1,001,972,863. Exports of manufactures from the United States have more than doubled in ten years and quin-

TABLE I
IMPORTS AND EXPORTS, CALENDAR YEARS 1910 AND 1911

Countries	Imports		Exports	
	1910	1911	1910	1911
Argentina	\$ 32,050,322	\$28,446,296	\$42,776,982	\$50,140,438
Australia	13,953,627	8,659,604	31,510,496	40,172,348
Austria-Hungary	18,022,396	16,202,300	16,241,191	21,083,336
Belgium	37,559,056	37,326,398	38,910,722	50,002,923
Brazil	103,716,231	103,461,111	24,988,337	28,853,819
Canada	103,256,965	93,923,751	241,809,233	299,100,457
Chinese Empire	33,109,472	31,768,838	15,832,092	23,366,505
Cuba	127,827,395	106,139,161	57,783,617	62,280,509
France	121,810,225	122,365,074	115,709,548	128,303,274
Germany	166,536,719	165,636,669	258,307,490	294,847,562
India, British	43,428,214	47,243,621	7,638,981	11,733,101
Italy	49,296,827	46,365,923	52,697,405	61,153,592
Japan	73,763,695	78,022,980	26,566,178	44,103,802
Mexico	61,092,502	57,391,622	63,858,939	53,454,407
Netherlands	30,682,712	34,125,347	84,867,181	106,392,194
Russia	13,828,265	14,726,509	19,533,761	24,151,483
United Kingdom	270,889,409	250,122,175	550,626,404	538,810,416
Grand Divisions				
Europe	790,154,694	770,993,236	1,192,695,728	1,293,072,962
North America	324,212,684	296,441,256	425,576,553	482,438,006
South America	189,466,428	187,434,969	100,303,616	121,736,604
Asia and Oceania	239,732,090	254,442,917	124,859,916	171,489,717
Africa	19,358,355	23,754,782	21,055,831	23,788,957
Total	1,562,924,251	1,533,067,130	1,864,491,644	2,092,526,846

tupled in twenty years. In 1891 they aggregated \$190,000,000; in 1901, \$447,000,000, and as seen above, in 1911, over \$1,000,000,000. The four leading articles of domestic manufacture, iron and steel, copper, mineral oil, and wood, supply over half the entire exportations of manufactures from the country, and to them the gain of over \$500,000,000 in ten years is largely due.

American manufactures are sold in all parts of the civilized world. In 1911 the exports

of agricultural implements from the United States to Russia aggregated \$7,273,203; those to Canada and Argentina, each about \$6,000,000; to Germany, \$2,378,953, and to France, \$3,088,298. About three and one-third million dollars' worth of automobiles went to the United Kingdom in 1911 and nearly double that sum to Canada. Mexico, Cuba, and Argentina, as well as Canada, took large amounts of railway equipment, the value of freight and passenger cars alone sent to each of those countries rang-

TABLE II

TABLE OF COMMERCE FOR FISCAL YEARS 1909, 1910, 1911

Countries	Imports			Exports		
Europe	1909	1910	1911	1909	1910	1911
Austria-Hungary ...	\$15,436,587	\$17,408,910	\$16,958,099	\$14,226,703	\$14,962,731	\$19,514,787
Belgium	27,383,918	40,069,281	37,084,734	45,093,003	41,116,585	45,016,622
Denmark	1,625,408	2,198,334	1,712,600	17,622,113	13,644,903	13,196,950
France	108,387,337	132,363,346	115,414,784	108,764,262	117,027,466	135,271,648
Germany	143,525,828	168,806,237	163,242,560	235,324,140	249,555,926	287,495,814
Greece	2,382,202	2,643,005	3,133,049	1,237,297	429,670	627,320
Italy	49,297,894	49,868,367	47,334,809	58,509,695	53,467,053	60,580,766
Netherlands	26,086,336	\$1,713,768	32,926,492	95,012,866	84,937,878	96,103,376
Norway	4,643,609	6,551,985	8,009,490	5,806,113	5,949,330	7,356,405
Portugal	6,240,562	6,507,733	7,015,358	3,901,405	3,223,855	2,669,910
Russia in Europe...	11,051,571	16,196,154	11,004,164	15,638,175	18,789,930	23,524,267
Spain	14,077,064	18,453,278	19,784,998	19,679,003	18,964,403	25,064,916
Sweden	4,486,142	6,330,477	8,532,422	6,731,304	5,991,896	7,973,820
Switzerland	23,831,492	25,209,159	25,652,299	750,736	1,613,168	2,536,141
Turkey in Europe..	6,393,468	8,689,769	7,546,446	1,896,249	505,552,871	576,613,974
United Kingdom....	208,612,758	271,029,772	261,289,760	514,627,365		
Total Europe	654,322,918	806,270,280	768,167,760	1,146,755,321	1,135,914,551	1,308,275,778
North America						
Bermuda	477,705	591,253	599,516	1,163,626	1,323,959	1,357,631
British Honduras ..	848,925	1,066,409	1,184,373	1,081,898	1,211,852	1,562,533
Canada	79,317,055	95,128,310	100,863,418	163,448,656	215,990,021	269,806,013
Newfoundland and Labrador	1,162,211	1,229,688	1,380,935	3,939,643	4,074,802	4,604,332
Central Am. States:						
Costa Rica	2,695,858	3,641,298	4,838,416	2,307,096	3,050,510	3,473,736
Guatemala	3,148,489	1,832,324	2,562,488	1,706,156	1,959,246	2,431,769
Honduras	2,150,762	2,012,225	2,657,009	1,499,632	1,605,493	2,126,014
Nicaragua	1,004,811	1,321,767	1,442,299	1,355,287	1,690,792	2,475,792
Panama	1,676,994	2,229,189	3,508,735	16,797,530	20,698,371	20,867,919
Salvador	970,137	1,176,393	1,463,292	1,462,135	1,816,957	2,100,713
Total Central American States ..	11,647,041	12,213,196	16,470,739	25,127,836	30,219,369	33,475,583
Mexico	47,712,214	58,795,943	57,450,111	49,793,323	58,193,704	61,281,715
West Indies:						
British	11,410,019	11,154,683	12,258,580	11,715,654	11,277,963	11,873,400
Cuba	96,722,193	132,528,037	110,349,468	43,913,856	52,858,758	60,709,062
Danish	221,457	403,926	135,117	693,681	749,174	810,537
Dutch	249,823	346,589	335,256	635,827	658,146	768,802
French	49,899	43,222	25,257	1,411,204	1,318,244	1,578,181
Haiti	525,947	790,519	813,713	3,937,359	4,498,449	5,358,761
Santo Domingo...	3,653,880	2,462,716	3,632,453	2,579,320	3,106,402	3,805,329
Total N. America	253,999,920	306,767,486	305,496,793	309,475,694	385,520,069	457,059,179
South America						
Argentina	22,230,182	33,463,264	29,090,732	33,712,505	40,694,941	43,918,511
Bolivia	138	189	327	792,691	603,721	891,624
Brazil	98,053,229	108,154,491	100,867,184	17,527,692	22,897,890	27,240,146
Chile	13,712,373	20,921,326	19,941,000	5,466,286	8,304,246	12,044,578
Colombia	7,010,304	7,485,141	8,994,460	3,679,070	3,979,886	4,906,934
Ecuador	2,730,372	2,859,714	3,628,805	1,849,657	2,215,954	2,238,539
Gulana:						
British	791,349	567,793	473,050	2,009,988	1,884,331	1,850,867
Dutch	865,743	925,782	999,221	612,087	685,889	722,853
French	39,728	21,171	31,433	371,615	300,213	287,034
Paraguay	16,777	29,170	34,516	52,268	61,142	86,986
Peru	6,386,544	7,621,497	9,314,030	4,557,864	4,548,053	5,597,123
Uruguay	3,726,877	7,413,896	1,613,736	3,360,313	4,272,145	5,317,711
Venezuela	8,313,609	6,701,352	7,635,256	2,568,211	2,797,210	3,791,620
Total S. America.	163,878,724	196,164,786	182,623,750	76,561,680	93,246,820	108,894,894
Asia						
Aden	1,768,945	2,068,220	1,629,631	1,446,670	531,784	1,193,942
Chinese Empire	29,442,722	29,990,370	34,227,503	19,948,933	16,970,453	19,287,836

TABLE II (Continued)

Countries	Imports			Exports		
East Indies:						
British India	43,547,347	45,320,268	45,952,047	8,372,137	7,581,233	9,414,203
Straits Settlements	15,719,858	18,654,702	19,958,513	1,590,431	1,709,046	2,143,242
Other British.....	4,640,691	6,773,643	8,723,264	293,062	204,738	380,351
Dutch	22,967,601	10,651,935	9,934,163	2,622,998	2,241,225	3,213,598
Hongkong	1,769,019	2,233,231	2,718,315	7,267,802	6,467,165	7,756,138
Japan	70,392,722	66,398,761	78,527,496	36,691,613	21,959,810	36,721,409
Korea	2,879	20,176	245,551	320,780	442,068	1,144,583
Persia	345,250	683,771	1,055,608	1,150	509,178	21,899
Russia in Asia	793,345	1,181,058	1,199,298	1,635,734	1,039,881	1,179,782
Siam	121,988	125,882	75,306	364,029	286,220	370,348
Turkey in Asia....	6,035,660	8,514,132	10,150,372	621,893	744,504	1,403,912
Total Asia	197,548,027	194,026,802	218,449,730	71,792,187	60,861,813	85,422,428
Oceania						
British Oceania:						
Australia and Tas-						
mania	13,975,210	14,806,764	9,102,868	24,077,260	27,696,551	37,524,586
New Zealand.....	2,847,655	4,168,125	2,676,870	5,463,547	5,577,088	7,555,962
All other	107,216	165,321	14,766	130,566	122,987	506,142
French Oceania....	669,036	603,418	1,017,473	397,740	544,436	643,764
German Oceania ...	30,896	38,270	62,072	132,234	116,374	113,546
Philippine Islands..	9,433,986	17,317,897	17,274,452	11,189,441	16,832,645	19,723,113
Total Oceania	27,062,008	37,099,795	37,274,452	41,390,788	50,890,087	66,067,313
Africa						
British Africa:						
West	196,185	227,108	212,155	1,997,245	2,241,448	2,041,893
South	1,689,570	2,178,174	2,160,342	7,298,954	9,614,406	12,842,442
East	856,613	803,612	1,184,191	515,441	601,133	639,517
French Africa.....	549,513	726,970	672,851	1,609,083	1,275,393	1,454,455
German Africa	208,302	433,098	536,274	160,149	200,465	239,456
Morocco	192,017	475,205	296,229	62,101	60,373	42,207
Portuguese Africa..	106,061	239,996	250,036	3,661,167	3,138,775	3,395,737
Spanish Africa ....	.....	.....	.....	22,897	14,934	20,422
Egypt	11,200,841	12,176,108	21,674,653	1,293,807	982,845	2,114,566
Total Africa.....	15,108,627	17,489,739	27,213,620	17,035,434	18,551,380	23,600,607
Grand total.....	\$1,311,920,224	\$1,556,947,430	\$1,527,226,105	\$1,633,011,104	\$1,744,984,720	\$2,049,320,199

ing from \$1,000,000 to \$2,500,000. Europe took nearly \$1,250,000 worth of American clocks and watches in 1911, and Canada an almost equal amount. The growing exports of copper pigs are mostly sent to the industrial countries of Europe. All grand divisions and practically all important countries are represented in the 1911 high record exports of iron and steel in their numerous forms—rails, typewriters, structural forms, cash registers, adding machines, locomotives, sewing machines, windmills, printing presses, etc. Cuba, Canada, and Great Britain offer large and growing markets for our boots and shoes.

In round numbers the exports of the principal classes of commodities in the calendar year 1911, in addition to iron and steel, were as follows: Raw cotton, \$577,000,000; meat and dairy products, \$160,000,000; breadstuffs, \$136,000,000; oils, \$132,000,000; copper pigs, ingots, etc., \$98,000,000; wood and manufactures, \$96,000,000; leather and manufactures, \$57,000,000; tobacco and manufactures, \$47,000,000. In imports of 1911 sugar stands at the head, with approximately \$100,000,000. Other values are as follows: Silk and manufactures of silk, \$99,000,000; coffee, \$97,000,000; cotton manufactures, \$68,000,000; wood and manufactures of wood, \$52,000,000; manufactured fibres, \$56,000,000; India rubber and manufactures, \$89,000,000; and raw wool, \$25,000,000.

TRADE WITH SOUTH AMERICA. Trade between the United States and South America in the calendar year 1911 was practically \$300,000,000 in value, a total in excess of that of any earlier year. In 1900 the trade between the United States and that continent aggregated \$144,000,000; in 1905, \$211,000,000; in 1910,

\$290,000,000; and for the calendar year 1911 a total of fully \$300,000,000.

TABLE III

CHIEF ARTICLES OF IMPORT, FISCAL YEARS 1910 AND 1911

Articles	Imports	
	1910	1911
Art works.....	\$ 21,008,720	\$22,495,842
Automobiles	2,851,446	2,250,759
Chemicals, drugs, and dyes	90,964,241	95,101,006
Coal and coke	4,460,919	5,534,113
Copper & manufactures of	30,938,365	32,013,562
Coffee .....	.....	90,567,788
Cotton, manufactures of	66,473,143	66,996,551
Earthen, stone & chinaware	11,021,126	11,411,665
Fibres:		
Manufactures of	57,624,245	54,765,999
Unmanufactured	32,418,839	30,752,250
Fish	13,835,968	14,939,314
Fruits, including nuts.....	37,423,827	41,515,067
Furs, and manufactures of	11,008,386	8,267,947
Hides and skins other than fur skins	112,247,836	70,504,980
India rubber and gutta-percha crude	101,078,825	92,910,513
Iron and steel, and manufactures of	38,502,457	34,205,968
Precious stones	47,799,801	40,623,137
Leather, and manufact's of	16,865,937	14,636,720
Oils	24,299,569	33,023,687
Silk:		
Manufactures of	32,888,459	31,900,054
Unmanufactured	67,115,177	74,924,004
Spirits, wines, and malt liquors	23,304,133	18,004,908
Sugar	106,349,005	96,691,096
Tea	13,671,946	17,613,569
Tin, in bars, blocks, or pigs	30,869,532	37,935,978
Tobacco, unmanufactured	27,751,279	27,855,996
Wood, and manufactures of	54,422,504	52,931,803
Wool:		
Manufactures of	23,532,175	23,228,005
Unmanufactured	51,220,844	52,931,803

TABLE IV
CHIEF ARTICLES OF EXPORT, FISCAL YEARS 1910
AND 1911

Exports	1910	1911
Agricultural implements ...	28,124,033	35,973,398
Animals	17,447,785	19,048,653
Breadstuffs	131,191,330	124,913,53
Cars, carriages, and other vehicles	20,630,859	30,534,936
Chemicals, drugs, dyes, and medicines	21,415,935	23,007,414
Coal	40,512,546	45,013,436
Copper, and manufactures of	88,004,397	98,705,308
Cotton:		
Manufactures of	33,397,097	40,851,918
Unmanufactured	450,447,243	585,318,869
Fertilizers	8,700,640	10,721,132
Fish	9,652,088	7,698,321
Fruits, including nuts.....	13,885,654	24,498,465
Iron and steel, and manu- factures of, not including ore	179,133,186	230,725,351
Leather, and manufact's of	52,646,755	53,673,057
Mineral oils	99,090,212	98,115,516
Meat and dairy products....	130,632,783	149,389,737
Naval stores	18,681,962	25,022,720
Oil cake and oil cake meal†	19,251,012	19,631,121
Paper, and manufactures of	16,083,271	19,215,499
Paraffin and paraffin wax..	7,886,359	7,378,736
Seeds	3,485,418	2,475,066
Tobacco:		
Manufactures of.....	4,803,101	4,383,584
Unmanufactured	38,115,386	39,255,320
Vegetable oils.....	16,479,301	19,805,232
Wood, and manufactures of.	78,813,803	92,256,951

† Not including corn oil cake.

Imports from South America still exceed exports to that continent, though the latter are rapidly gaining in the proportion which they form of the total trade. In 1900 imports were valued at \$103,000,000, exports at \$41,000,000, exports thus being 29 per cent. of the total trade. In 1911 imports were \$187,434,966 and exports \$121,736,604, the latter being 40 per cent. of the total trade.

The imports into the United States from South America are chiefly drawn from the following countries: Brazil, \$103,464,111; Argentina, \$28,446,296; Chile, \$20,230,436; Colombia, \$9,894,431; Peru, \$8,960,895; and Venezuela, \$8,673,489. From Ecuador the year's imports are a little over \$3,000,000; from British Guiana, a little less than \$2,000,000, and from Dutch Guiana about \$1,000,000.

Exports to South America, on the other hand, show a marked growth when compared with those of a year earlier, the total for 1911 being \$121,736,604, compared with \$100,303,616 in 1910, the former high record year. To Argentina, the largest South American market for American products, our exports increased from \$42,750,000 in 1910 to a total of \$50,000,000 in the year just ended; to Brazil, from \$25,000,000 to \$28,000,000; to Chile, from \$10,000,000 to \$15,000,000; to Peru, from less than \$5,000,000 to practically \$6,000,000; to Uruguay, from \$4,500,000 to \$5,500,000; to Venezuela, from \$3,000,000 to \$4,000,000; and to Colombia, from \$4,666,000 to a little over \$5,000,000.

COMMERCE WITH NON-CONTIGUOUS TERRITORIES. The total value of domestic merchandise shipped to non-contiguous territories of the United States, which includes Alaska, Hawaii, Porto Rico, and the Philippine Islands, in the calendar year 1911 was as follows: Alaska, \$14,693,588; in 1910, \$16,822,732; Hawaii, \$21,917,747; in 1910, \$21,637,751; Porto Rico, \$35,872,109; in 1910, \$30,565,023; Philippine Islands, \$20,896,029; and in 1910, \$19,856,828. Imports to the United States from non-contiguous territories in 1911 were as follows: Alaska,

\$19,318,859; Hawaii, \$48,086,991; Porto Rico, \$35,446,186; Philippines, \$20,212,917.

INTERNAL COMMERCE

LIVESTOCK AND GRAIN MOVEMENTS. The commercial movement of livestock in 1911 as measured by receipts of food animals at seven primary interior markets showed an increased volume as compared with 1910. Large gains were shown in the receipts of hogs and sheep. The supply of cattle, on the other hand, fell about half a million head short of the total for 1910. As compared with the five-year average supply for the period 1906 to 1910, the receipts of cattle in 1911, 8,768,546, showed a decline of 5 per cent., and those of hogs, 20,806,479, an increase of 8 per cent. The large gain of sheep shown in 1910 continued in 1911, the total, 13,556,108, exceeding the average for 1906 to 1910 by about 27 per cent.

Grain receipts at 16 leading interior markets for 1911 amounted to 80,445,665 bushels, compared with 82,929,554 bushels in 1910. The aggregate was made up of 262,639,188 bushels of wheat, 254,466,168 bushels of corn, 197,318,369 bushels of oats, 76,380,150 bushels of barley, and 9,621,790 bushels of rye. Flour shipments from 13 leading milling centres were about 13 per cent. below those of 1910, or 36,379,969 barrels. The loss affected chiefly Chicago, Duluth, Milwaukee, and Kansas City.

LUMBER MOVEMENTS. The movements of lumber during 1911 showed but little change from the depressed condition of trade indicated in 1910. The stationary condition in building, especially in the larger cities of the East and the substitution of iron and steel for wood, are partly accountable for the unsatisfactory traffic return. In the North and Central West the gradual exhaustion of the supply of timber is another important factor in curtailing the market supply of lumber. The rail shipments of pine lumber from the territory in the Mississippi and Wisconsin valleys, as reported by the Northern Pine Manufacturers' Association, shows a total of 1,258,079,432 feet, as against 1,186,039,886 feet in 1910.

COAL MOVEMENTS. The volume of coal traffic during 1911, as reported by the leading Eastern coal-carrying railroads, showed but little change from 1910. Coke, on the other hand, showed a considerable decline. The anthracite coal shipments from the Eastern producing territory aggregated during 1911 69,954,299 long tons, the largest annual total recorded in ten years, and exceeding by over 5,000,000 long tons the high record of 1910. Movements of bituminous coal, as reported by 12 Eastern coal-carrying roads, totaled 114,623,992 short tons in 1911, as compared with 141,901,017 short tons in 1910. The Lake shipments of soft coal in the year, 17,081,355 short tons, showed a considerable shrinkage from the 1910 figures of 18,405,469 short tons. This resulted in a measure from the coal strike which increased the demand for coal at the upper Lake ports.

LAKE COMMERCE. The volume of Lake commerce in 1911, as measured by the quantity of merchandise shipped between domestic Lake ports, showed a decline of 15 per cent., or from 86,732,316 short tons in 1910 to 74,311,019 short tons in 1911. The loss was due mainly to the lighter eastward movement of iron ore. The principal gains were in grain, hard coal,

and miscellaneous freight. Domestic shipments of iron ore to Lake Michigan and Lake Erie ports fell more than 10,000,000 short in 1911 from the shipments of 1910, while the shipments of soft coal, 17,081,355 short tons, fell about one and one-third million tons short of the 1910 total. The shipments of hard coal, mainly from Buffalo, Erie, and Oswego, showed a normal increase during 1911, the total, 4,374,100 short tons, exceeding that of any previous year. Lake shipments of lumber in 1911 showed a slight decline from the figures of 1910. The decline affected shipments from Lake Erie and Lake Huron ports, while those from Lake Michigan ports showed a slight increase. Grain and flaxseed shipments during the year, 133,894,362 bushels, showed an increase over the figures of 1910. Flour shipments for the year, 1,152,807 short tons of 10 barrels each, showed but little change from the figures for 1910. Lake shipments of copper, mainly from Lake Superior ports, 142,075 short tons in 1911, showed a decline of 15 per cent. from the figures for 1910, and the lake movement of pig iron, iron manufacturers, and salt showed even larger declines. In unclassified freight, however, there was a considerable increase.

The movement of vessels in the domestic Lake trade showed a decline from 1910 of 110,292-481 net tons register to 103,601,550 in 1911. The average size of the Lake vessels engaged in the domestic Lake trade was 1331 net tons, compared with 1452 net tons in 1910.

RIVER AND CANAL TRAFFIC. Data regarding transportation on rivers and canals in the country reflect the total traffic movement in a very imperfect manner. This is especially true of the statistics of commercial movements on the Mississippi River, which are reported from a few points only. The vessel movement at Cairo, Ill., at the confluence of the Mississippi and Ohio rivers showed 7149 arrivals and a combined tonnage of 3,947,337 tons, of which 5045 arrivals, comprising 3,284,842 tons, represented the movement of boats and barges, and 2104 arrivals, comprising 662,495 tons, the movement of steamers. The Erie Canal tonnage for the year, 2,031,735 short tons, as well as the freight tonnage for all New York State canals, 3,097,068 short tons, showed but little change from the low figures of the two years preceding. The movement of grain and grain products by these canals aggregated 314,476 short tons, the lowest annual total recorded by the New York State authorities.

COINAGE. The coinage executed at the mints of the United States during the years 1910 and 1911 was as follows:

Denomination	1910	
	Pieces	Value
Double eagles.....	1,819,600	\$36,392,000.00
Eagles.....	586,695	5,866,950.00
Half eagles.....	2,403,639	12,018,195.00
Quarter eagles.....	759,871	1,899,677.50
Total gold.....	5,569,805	\$56,176,822.50
Half dollars.....	3,373,623	\$1,686,811.50
Quarter dollars.....	5,642,143	1,410,535.75
Dimes.....	33,599,543	3,359,954.30
Total silver.....	42,615,309	\$6,457,301.55
Five cents.....	39,559,372	\$1,977,968.60
One cent.....	117,875,787	1,178,757.87
Total minor.....	157,435,159	3,156,726.47
Total coinage.....	205,620,273	\$65,720,850.52

Coinage for Philippine Islands' government:

Silver—Pesos.....	463,000	pieces
20 centavos.....	505,000	"
10 centavos.....	1,000,505	"
Total.....	1,968,505	"
Bronze—1 centavo.....	4,803,800	"

Coinage executed for the republic of San Salvador: Silver—peso pieces, 1,968,505 pesos.

RECEIPTS AND DISBURSEMENTS. The following table, compiled from figures given by the Secretary of the Treasury, shows the receipts and disbursements of the federal government for the fiscal years 1910 and 1911:

RECEIPTS		1910	1911
Customs.....	\$333,683,445.03	\$314,497,071.24	
Internal revenue:			
Ordinary.....	268,981,738.48	289,012,224.20	
Corporation tax.....	20,951,780.97	33,616,978.59	
Sales of public lands.....	6,355,797.49	5,731,636.88	
Miscellaneous.....	45,538,953.05	58,614,466.08	
Ordinary receipts.....	\$675,511,715.02	\$701,372,374.99	
Panama Canal receipts.....	*	18,102,170.04	
Public debt receipts.....	31,674,292.50	40,232,555.00	
Total, exclusive of postal.....	\$707,186,007.52	\$759,707,100.03	
Postal revenue.....	224,128,657.62	237,879,823.60	
Total incl. postal.....	\$931,314,665.14	\$997,586,923.63	
* Proceeds of bonds.....			
DISBURSEMENTS		1910	1911
Civil and miscellan.....	\$171,580,829.79	\$173,838,599.04	
Postal deficiency.....	8,495,612.37		
War Department.....	155,911,705.93	160,135,975.89	
Navy Department.....	123,173,716.68	119,937,644.39	
Indians.....	18,504,131.60	20,933,869.44	
Pensions.....	160,696,415.83	157,980,575.01	
Int't on public debt.....	21,342,978.83	21,811,334.12	
Ordinary disburs.....	\$659,705,391.08	\$654,137,997.89	
Panama Canal disbursements.....	33,911,673.37	37,063,515.33	
Public debt disbursements.....	33,049,695.50	35,223,336.35	
Total, exclusive of postal.....	\$726,666,759.95	\$726,424,849.57	
Postal expenditures.....	224,128,657.62	237,879,823.60	
Total, incl. postal.....	\$950,795,417.57	\$964,085,555.05	
Deficit.....	19,480,752.43		
Excess of receipts.....		33,501,368.58	

The receipts and disbursements for the fiscal year ending June 30, 1912, are estimated by the Secretary of the Treasury in his annual report as follows:

RECEIPTS		1912
Customs.....	\$296,000,000	
Internal revenue.....	165,000,000	
Corporation tax.....	25,000,000	
Miscellaneous.....	55,000,000	
Total ordinary receipts.....	\$666,000,000	
DISBURSEMENTS		1912
Civil establishment.....	\$172,000,000	
War Department.....	165,000,000	
Navy Department.....	125,000,000	
Indian service.....	17,000,000	
Pensions.....	154,000,000	
Interest on the public debt.....	22,775,000	
Total ordinary disbursements.....	655,775,000	
Surplus for 1912 in ordinary receipts.....	10,225,000	
Panama Canal disbursements.....	45,000,000	
Miscellaneous redemptions of the public debt.....	150,000	
Total estimated deficit.....	\$ 33,189,104	

CIRCULATION. The following table shows the general stock of money in the United States on January 2, 1912, the amounts held in the treasury as assets of the government on that date, and the money in circulation on the same date and on January 2, 1911:

building for the Department of Justice, \$1,900,000, and the building for the Department of Commerce, \$3,650,000. The largest of the buildings is to be that of the Department of Commerce and it will stand between the other two. The whole group of buildings will occupy

	General stock	† Held in Treas.	Money in circulation	
	Jan. 2, 1912	Jan. 2, 1912	Jan. 2, 1912	Jan. 2, 1911
Gold coin (including bullion in Treasury).....	\$1,797,000,916	\$172,017,641	\$614,026,906	\$605,650,087
* Gold certificates.....		104,012,002	906,944,367	849,174,639
* Standard silver dollars.....	565,186,367	1,481,778	74,538,591	75,794,419
* Silver certificates.....		11,138,716	478,027,284	474,333,499
Subsidiary silver.....	165,789,312	18,016,294	147,773,018	142,462,703
Treasury notes of 1890.....	8,093,000	14,388	8,078,614	3,461,493
United States notes.....	846,681,016	8,730,716	237,950,300	237,412,254
National bank notes.....	740,603,187	35,366,946	705,256,242	704,091,292
Total	\$3,618,353,798	\$350,778,476	\$3,267,575,322	\$3,192,280,286

Population of continental United States January 2, 1912, estimated at 94,808,000; circulation per capita, \$34.47.

* For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the treasury, and is not included in the account of money held as assets of the government.

† This statement of money held in the treasury as assets of the government does not include deposits of public money in National Bank depositaries to the credit of the Treasurer of the United States, amounting to \$36,151,904.37.

For a full statement of assets see Public Debt Statement.

NATIONAL DEBT. The amount and classification of the United States national debt at the end of the calendar years 1909, 1910, and 1911 were as follows:

	Dec. 31, 1909	Dec. 31, 1910	Dec. 31, 1911
Interest-bearing debt at from 2 to 4 per cent. and redeemable from 1907 to 1925 inclusive.....	\$ 913,317,490.00	\$ 913,317,490.00	\$ 963,359,390
Debt on which interest has ceased since maturity	2,365,725.26	1,995,045.26	1,821,830
Debt bearing no interest.....	380,537,483.78	387,919,402.43	379,794,799
Gross debt.....	\$1,296,220,699.04	\$1,303,231,937.69	\$1,344,976,020
Cash balance.....	84,048,865.69	89,393,472.14	126,925,992
Net debt.....	\$1,212,171,833.35	\$1,213,838,465.55	\$1,218,050,138

DISTRICT OF COLUMBIA. The Thirteenth Census included statistics of agriculture for the District. These are for April 15, 1910. On that date there were 217 farms, compared with 269 in 1900. The land in farms was 6063 acres. The improved land in farms was 5133 acres. The average acreage per farm was 279. The total value of farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$8,476,533, compared with \$11,535,376 in 1900, a decrease of \$3,058,843 in the decade. The average value of all property per farm was \$39,062, compared with \$42,882 in 1906. The average value of land per acre was \$1186, compared with \$1142 in 1900. The farms operated by owners and managers numbered 133, and those operated by tenants, 84. Of the farms operated by owners 93 were free from mortgage and 21 were mortgaged. The native white farmers numbered 168; foreign-born, 37; negro and other non-white, 12. The value of domestic animals of all kinds was \$152,840. The cattle numbered 982, valued at \$75,305; horses and colts, 564, valued at \$55,026; mules, 53, valued at \$5860; swine, 665, valued at \$9382; poultry of all kinds numbered 8349, valued at \$6477.

In April, 1911, the government made the assignment of commissions for the erection of three new department buildings, the State, Justice, and Commerce buildings. This award is the largest and in some respects the most important ever offered in the United States. The State Department building is to cost \$2,200,000; the

the area bounded by Pennsylvania Avenue, the Mall, and Fourteenth and Fifteenth streets. The two end buildings are to be three stories high and the Commerce building five stories. The structures are to be of white marble, thus harmonizing with the wings of the Capitol, the new House and Senate office buildings and the new District of Columbia building. In the State Department building there will be an international conference room, a reception room, and a large state dining room. In the Justice building there will be a large law library. Successful competitors for designs of the buildings were Arnold W. Brunner for the State building, Donn Barber for the Justice building, and York & Sawyer for the Commerce building.

ARMY

The authorized strength of the regular army at the end of the fiscal year 1911 was 77,523 enlisted men and 4848 officers, an increase of 395 officers and 612 enlisted men over the preceding year. In addition the authorized strength of the Philippine Scouts was 5732 enlisted men and 180 officers, the same as in 1910. The actual strength of the regular army on October 15, 1911, the latest date for which statistics are available, was 70,250 enlisted men and 4388 officers, an increase over the preceding year of 78 officers and 2791 men. In addition to these the actual strength of the Philippine Scouts on that date was 173 officers and 5442 enlisted men, an increase over 1910 of 7 officers and 742 men. The geographical distribution of

the army, including the Philippine Scouts, is shown in the following table:

In the United States.....	56,753
In Alaska	1,084
In the Philippines:	
Of the regular army.....	11,583
Philippine Scouts.....	5,615
In Porto Rico	600
In Hawaii	2,332
In the Canal Zone.....	854
Troops en route and officers in foreign stations	1,432

During the fiscal year 1911 Congress enacted legislation for the creation of additional officers, 12 of whom are to be engineers and 60 dental surgeons, while 200 are for the purpose of meeting the drain caused by officers necessarily on detached duty, particularly for the instruction of the militia. Inasmuch as the graduating class from the Military Academy and those commissioned from among the enlisted men were quite insufficient to fill the already existing vacancies, many of the new officers must be appointed from civil life. Great care has been taken in prescribing the requirements of the examinations of these officers in order to raise, if possible, the standard of admission and to hold out special inducements to the educated men of the country, graduates of colleges and universities, to enter the military service. One examination was held in 1911, but the results had not been published at the end of the year.

PERSONNEL. The Secretary of War in his annual report notes a distinct improvement in the personnel of the army, both officers and men. This he believes is due largely to the influence of the army schools, which have broadened the outlook and distinctly raised the tone of the army at large and engendered a high sense of duty and a sense of self-sacrifice. He points out the great need of a fair merit system; governing both promotion and elimination of officers. As a result of the present system of elimination for unfitness, there is much deadwood in the army, and the secretary expresses the desire to bring about a more rational treatment of their duties of the examination and retirement boards to the end that these unfit officers may be eliminated.

ENLISTMENT AND DESERTION. Recruiting for the army proceeded satisfactorily throughout the year and the Secretary of War reports the character of the men enlisted gratifyingly good. The actual strength of the army on October 15, 1911, was about 9 per cent. below its authorized strength. About 72 per cent. of the whole number of applicants for enlistment were rejected. The number of desertions during the fiscal year fell from 4993 and 3464 for the two preceding years to 2504, or 2.28 per cent. of the whole number of enlisted men in the service during the year. This is the lowest percentage of desertion that has obtained in the American army, with one exception, during the past ninety years.

HEALTH AND SANITATION. One of the most striking achievements ever accomplished by the medical corps of the army was the demonstration which it made during the fiscal year 1911 of the value of the typhoid prophylaxis. In this particular branch of preventive medicine the physicians of the regular army are leading the progress of the medical world. As soon as orders were issued for the mobilization in Texas

pating should receive the prophylactic treatment. The results of this measure were remarkable. During the mobilization about 16,000 men were concentrated in military camps in the country, certain portions of which were infected with typhoid fever. During the first four months of the encampment in Texas 49 cases of typhoid fever occurred in the city population of San Antonio and 192 in Galveston. In the army camp typhoid fever was practically absent, there being only three cases in the whole camp, two in San Antonio and one in San Diego. Of these cases one was that of a teamster who had evaded the inoculation. Not a single case occurred in Galveston or at the numerous camps along the Mexican border.

MILITARY OPERATIONS. The most noteworthy military activity of the year was the mobilization of the troops in Texas, where for several months large bodies were engaged in assisting the civil authorities in the enforcement of the neutrality laws on the Mexican border. Conditions indicating a serious unrest and intrigue on both sides of the border led to the stationing of two cavalry troops along the frontier of Texas in November, 1910. These were augmented as necessity required until the entire border line from the mouth of the Rio Grande in Texas to San Diego in California was patrolled by United States troops. In March, 1911, a division of troops was concentrated at San Antonio, Tex., for the purpose of manoeuvres and to render the civil authorities any aid that might be required to secure the proper observance and enforcement of the neutrality laws on the Mexican border. A separate brigade was mobilized at Galveston, Tex., and a partial brigade at San Diego, Cal. This movement involved the transportation of about 16,000 troops in various posts all within the continental limits of the United States, and it was accomplished practically without unnecessary delay. The return of these troops to their regular stations began on June 15, 1911, with the discontinuance of the second brigade and continued gradually until August 7, when the manoeuvre division was discontinued, the troops then remaining consisting of a regiment of cavalry, three regiments of infantry, a company of engineers, and a company of signal corps being temporarily attached to the Department of Texas. The experiences derived from these manoeuvres were of great value and importance to the army. See below, *Foreign Relations*.

ARMY ORGANIZATION. Plans for reorganizing the army administration have long been under consideration by successive secretaries of war and other officials. Under the present system, which is the same as when the army numbered only 25,000 men, the effective force of the United States is distributed among 49 army posts in 24 States and Territories. Of these posts 31 have a capacity for less than one regiment each, only six have a capacity for more than a regiment and but one a capacity for a brigade. The average number of organizations to each of the 49 posts is only 9 companies, giving an average strength of men for each post of but 650. Nearly all these posts were assigned to their present situations for reasons which are now either totally obsolete or which from the beginning were purely local. Many of them were the result of trouble among the Indians in the West. The result of this distribution is an arrangement which is extremely

expensive to maintain and one whose efficiency for the main purpose of its existence is nullified so far as its geographical location can nullify it. In addition the administrative work in keeping up these numerous small posts adds greatly to the expenses. It is estimated that the United States government pays per effective rifleman between two and five times as much as any first-class power on the continent of Europe, even after excluding from the comparison the higher pay and subsistence which American soldiers receive.

The reorganization of the army on the basis of larger tactical units and the rearrangement of garrisons with this in view has been urged for many years. The necessity of establishing forces in Hawaii and on the Isthmus of Panama, as well as for other purposes, makes reorganization even more imperative. Thoroughly to reorganize the military establishment, the Secretary of War estimates, would involve much legislation and would encounter many serious difficulties. Nevertheless, steps have been and are being taken to correct as far as possible these faults of organization. Among these steps are the following: The United States has been divided for administrative purposes into three territorial divisions which now perform the administrative functions formerly performed by seven departments. This change went into effect July 1, 1911. It has already resulted in an estimated saving of \$240,000 per annum. The department commanders, having been freed from the administrative work formerly performed by them, are now able to devote their time to the personal inspection, training, and supervision of the troops within their departments. The second change is in the redistribution of certain regiments. Several regiments of cavalry hitherto situated in the far north, where for many months in the year it was practically impossible for cavalry to drill outdoors, have been transferred to the Southwestern States. This was due in the first instance to the mobilization of the troops along the Mexican border, but these regiments will, as far as possible, continue to be maintained in this part of the country, while the infantry will be substituted for them in the northern posts. Third, steps have been taken to raise to maximum strength the company units of the forces in the foreign service, while the regiments on the continent of the United States continue to be of smaller size. This increase in the company units will raise the effective infantry and cavalry garrisons in the Philippines to 8592 men, as against 7536 under the present system. It will produce an economy in the maintenance of that garrison in pay alone \$1,000,000 per year. It will also reduce the cost of construction of permanent barracks and quarters in the islands and it will relieve for use in the United States or elsewhere six regiments, four of infantry and two of cavalry.

The question of the term of enlistment has received much consideration. Two opinions are held among officers of the army and others. One of these advocates the present term of three years for enlisted men, while the other believes that the term of service should be shortened to less than three years so as to allow as many men to go through the training of the regular army as possible, but that some hold should be retained over the discharged

soldier after he returns to civil life by which he can be recalled to the colors in case of war. The latter theory is the one advocated by Secretary Stimson. Bills to bring about this and other reforms in the organization of the army were introduced in Congress, but no action had been taken by the end of 1911.

COUNCIL OF NATIONAL DEFENSE. A bill was introduced in Congress and was favorably reported by the House committee on naval affairs to establish a council of national defense. The duty of this council is to make practicable the formulation and execution of a consistent and continuing policy of national defense, to help in coordinating the plans of the army and navy and furnish a means of coordinating military and financial questions before submitting to the President and Congress recommendations for measures of national defense.

NATIONAL VOLUNTEERS. A bill was pending before Congress at the end of the year to provide an organization of national volunteers. It is intended that this body shall be called out if necessary after the organized militia has been mustered in. These volunteers are intended to be distinct from the militia, which are under the control of the various States, and are to be under the control of the national government. Officers of the volunteer force are to hold their commissions from the President, who is to command them during the war for which they shall be called out. The bill provides for an adequate system for raising, training, and officering this force of volunteers. The organization is to be maintained only during the existence of war or while war is imminent and shall be raised and organized only after Congress has authorized the President to raise such a force or to call into the actual service of the United States the militia of the several States.

EXPENDITURES. The total expenditure of the War Department for the fiscal year ending June 30, 1911, was \$153,691,030. Of this sum, \$1,983,005 was for the civil establishments; \$100,031,184 was for the military establishment, including the support of the Army Military Academy and militia, \$10,850,564 for military public works; \$6,373,328 for miscellaneous expenses. Appropriations for the fiscal year ending June 30, 1912, amounted to \$141,489,788.

MILITIA. The organized militia in 1911 numbered 117,988 officers and men, a net decrease of 1672 from 1910. In addition to the usual camps of instruction for officers, more than 1000 officers of the organized militia served for periods of fourteen days with the manoeuvre division of the army at San Antonio, Tex. Twelve batteries of field artillery were given instruction with the regular army batteries at Sparta, Wisconsin, and the coast artillery reserves received the usual instruction at fortifications. The mobile militia of Massachusetts conducted manoeuvres in July under conditions resembling as closely as possible those of war. By act of Congress approved March 3, 1911, the President is authorized to detach not exceeding 200 officers of the active list from their commands for duty as inspectors and instructors of the organized militia, 200 additional officers being created in the regular army to support this additional requirement. See the articles **MILITARY PROGRESS** and **AERONAUTICS**.

NAVY

Statistics relating to the strength of the United States navy in 1911 will be found in the articles **BATTLESHIPS** and **NAVAL PROGRESS**.

ADMINISTRATION. The chief problem of the Navy Department is one of effective administration, and the Secretary of the Navy during 1911 devoted much time to study and investigations leading to greater efficiency. In 1909 steps were taken to place at the disposition of the Secretary of the Navy expert knowledge and information in order that he might keep in touch with matters over which he has charge. The essential feature of the plan is the grouping of different bureaus of the department in two divisions and the appointment of four aids, who are to keep informed as to the work of each division and supply the secretary with necessary expert advice on the duties coming under these divisions. These four aids are as follows: Aid for operation, aid for inspection, aid for material, and aid for personnel. The operation of this plan has been very successful toward improving the organization and efficiency of the department. It has also brought about considerable economy in administration.

NAVY YARDS. The administration of the navy yards has been a serious problem for many years. While the administration has materially improved during the past two years experience is demonstrating the necessity for more complete and unified control at the Department of Washington over the management of the yards. During the year Secretary Meyer visited several navy yards in England and as a result of this inspection he recommends certain changes in administration and equipment. In his opinion a central office could be advantageously established in the Navy Department, which should consider methods of navy yard work and the solution of various questions connected with plant improvement and shop management. This office has already been established under the assistant secretary, who will thus combine in his office the handling of all kinds of labor, improvement of plants, new buildings, and the methods of conducting work. The establishment of this office will greatly simplify and unify the methods of conducting the business with regard to the navy yards and result in better coordination. Secretary Meyer's observation of the method of administration in English navy yards convinced him that the two-division organization now employed in American yards, Hull and Machinery divisions, each presided over by an expert in that branch, is logical and entirely correct. Another interesting result of his visit was his conviction that the efforts at scientific management in the navy yards have not resulted in improved conditions.

The abolition of certain navy yards has engaged the attention of the secretaries of the navy for several years. The chief opposition to such steps has been political. In June, 1911, the whole question of navy yards was submitted to a joint board of the army and navy. Their report had not been completed at the end of the year. The general principle for reorganization of the yards includes the retention of the Philadelphia yard, which possesses a freshwater basin which is capable of accommodating all the reserve vessels of the navy. This yard is most suitable as the home of the reserve fleet, which will comprise 12 battleships and a num-

ber of cruisers and auxiliaries. The Charleston Navy Yard will increase in importance with the prospective increase of the torpedo fleet. It is proposed to make this yard the principal torpedo base. The Key West Naval Station, from its strategical location, is important as a base for torpedo vessels and it is essential that it should be further developed and improved. The Panama Canal, which for all practical purposes will become a part of the coast line of the United States and is destined to become the most important strategical point in the Western Hemisphere, makes necessary a Caribbean naval base with adequate docking and repair facilities. In the opinion of the Secretary of the Navy the best location for this station is Guantánamo Bay, Cuba, which is now held by the United States. This base will not only give control of the Caribbean with all its lines of approach to the canal, but, with the torpedo base at Key West, will render the Gulf of Mexico immune from attack. The Panama Canal will be in effect a naval base, since the docking and repair facilities to be provided there for naval vessels will meet requirements in time of war.

DOCKS. The docking facilities for naval vessels were slightly increased during the year. The act of March 4, 1911, authorized the enlargement of Dry Dock No. 2 at Boston. Dry Dock No. 3 at Norfolk was lengthened during the year. This dock will now take the largest ship contemplated. Three large docks are under construction: No. 4 at New York, No. 2 at Puget Sound, and No. 1 at Pearl Harbor. A congressional appropriation of \$550,000 to finish Dry Dock No. 4 at New York was recommended. This was to be completed and floated for its first test December 31, 1911. The Secretary of the Navy recommends a floating dry dock, capable of lifting the largest naval ship. This dock should have a lifting capacity of 35,000 tons. It would be approximately 650 feet long by 150 feet wide and be able to take a ship of 35 feet draft. See **DOCKS** and **HARBORS**.

FLEET REORGANIZATION. The reorganization of the fleet, which provides for a systematic and periodic visit of all vessels to their home yards for all necessary navy yard repairs; for the maintenance of the ships by their own crews in a greater and increasing degree; for more uniform and continuous employment for the yard forces; and, generally, for increased economy with efficiency, was carried into effect during the year. This reorganization provides for the readiness for service at all times of at least 17 battleships and for the readiness of all others on short notice. The operations of the fleet and the movements of vessels have been so regulated as to give as far as practicable reasonable time for overhauling machinery after extended sea trips. This is necessary to keep the engines in good condition and it encourages the crews to keep their vessels in repair. A revision of the "Regulations for the Government of the Navy" has been undertaken and will shortly be completed. This revision was necessary, owing to the recent changes in organization and administration effected in the fleet.

ACTIVE AND RESERVE FLEETS. The active fleet includes the Atlantic Fleet, the Pacific Fleet, the Asiatic Fleet, the Atlantic Torpedo Fleet, and the Pacific Torpedo Fleet. The Atlantic Fleet was engaged during 1911 in such cruising and exercises as seemed most desirable to improve and maintain its efficiency. In Decem-

ber, 1910, this fleet, under the command of Rear-Admiral Seton Schroeder visited Gravesend and Weymouth, England, Cherbourg and Brest, France, and in June the second division of the fleet under the command of Rear-Admiral C. J. Badger made a cruise in the Baltic, visiting Copenhagen, Denmark; Stockholm, Sweden; Kronstadt, Russia; and Kiel, Germany. The officers and crews received a most cordial welcome at all the ports visited. Advantage was taken of the fleet's passage through the English Channel to Guantánamo in January, 1911, to work out a scouting or searching problem, the battleship fleet acting as the "enemy" and the armored cruiser and scout divisions and a division of destroyers comprising a scouting force under the command of Rear-Admiral Staunton. The fleet spent about two months in Guantánamo and about one month in Cape Cod Bay, during which period many valuable exercises in battle tactics were carried out. On June 1, 1911, Rear-Admiral Hugo Osterhaus succeeded Rear-Admiral Schroeder as commander-in-chief. Early in July the fleet representing the "enemy" engaged in exercises against the Atlantic Torpedo Fleet and several naval militia vessels in the vicinity of the eastern end of Long Island. These exercises were undertaken primarily for the instruction of the naval militia organizations and proved of considerable value and interest to all engaged.

The Pacific Fleet, under the command of Rear-Admiral Chauncey Thomas, having been in continuous active service for several years, spent a considerable portion of the year 1911 overhauling its vessels. The fleet remained on the home coast throughout the year and spent all available time in exercises most needed to increase its efficiency. A considerable period was devoted to torpedo exercises with and against the Pacific Torpedo Fleet under conditions simulating war, from which much valuable experience was gained.

The Asiatic Fleet was commanded by Rear-Admiral John Hubbard until May 16, 1911, when he was succeeded by Rear-Admiral John D. Murdock. The vessels in this fleet performed valuable and efficient service in safeguarding American interests in Asiatic stations, particularly during the revolution in China.

The Atlantic Torpedo Fleet was increased during the year to 20 destroyers and 7 submarines. The fleet was very actively employed and accomplished a large amount of instructive work to the great benefit of the torpedo service. During the Atlantic Fleet drills at Guantánamo and Cape Cod Bay the Torpedo Fleet was attached to the Atlantic Fleet.

The Pacific Torpedo Fleet was actively engaged and did much excellent work in preparation and training for war, especially in the joint exercises with the Pacific Fleet, referred to above.

The Reserve Fleet includes older battleships. There are now four of these vessels ready for active service, the *Maine*, *Iowa*, *Indiana*, and *Massachusetts*. Five more, the *Alabama*, *Illinois*, *Wisconsin*, *Kearsage*, and *Kentucky*, will be ready by March 15, 1912. These nine battleships, together with the cruisers *Brooklyn*, *Columbia*, and *Minneapolis*, and such other vessels as it may be necessary or desirable to keep out of active service for long periods, will be organized as the Atlantic Reserve Fleet under the command of a rear-admiral, and vessels of

this fleet will be maintained in active service at a few hours' notice so far as their material condition is concerned, but each will have only the nucleus of a crew, the authorized enlisted strength of the navy being insufficient to assign them full crews. This plan will insure the readiness for war of practically every vessel of fighting value.

PERSONNEL. The Secretary of the Navy in his annual report points out several serious defects in the organization of the personnel of the navy, chiefly as related to line officers. The first of these faults is the method of promotion to flag rank. It does not insure providing flag officers with a length of service on the active list sufficient to permit them to acquire the experience necessary in handling a modern battleship fleet. While American officers have from one to five years' active service in command, the average British flag officer has twelve or fourteen years in flag rank, and the oldest has in the neighborhood of twenty. Second, no provision is made for any except the lowest grade in flag rank, that of rear-admiral. The recognized grades of rank are admiral of the fleet, admiral, vice-admiral, and rear-admiral. A battle fleet should be commanded by an admiral with a vice-admiral in command of each of the squadrons, and a rear-admiral in command of each of the divisions. Third, no provision is made for increasing the various grades in proportion as the total of all grades increases. While the present law is gradually bringing up the total to that required for the existing and prospective fleet, the grades remain as they were when the total was scarcely more than half the present total. Fourth, midshipmen are not commissioned until two years after graduation, during which time they are officers in a qualified sense and serve at sea, but are denied the right of pension and retirement in case of injury, a right conceded to all other officers and men. These faults and others of only less importance are corrected in the bill introduced in the Sixty-first Congress.

The personnel of the enlisted men of the navy steadily improves in character, knowledge, and efficiency. An increased number of men seek the service for the advantage which it offers for a permanent occupation. With the passage of a graded retirement law it is believed that the number of good men seeking enlistment will be larger and that the percentage of desirable reenlistments will be materially increased. The enlisted force of the navy is insufficient to man the ships effectively. There is a deficiency of approximately 4000 men.

MOBILIZATION OF FLEETS. Two important mobilizations took place during 1911. On October 30 the vessels on the Atlantic coast were mobilized at New York City and those on the Pacific coast at San Diego, Cal., in preparation for a review two days later. These mobilizations were for the purpose of testing the preparedness of the fleet and the efficiency of the organization of the ships in the navy yards. At New York the mobilization included 24 battleships, 2 armored cruisers, 2 cruisers, 22 destroyers, 16 torpedo boats, 8 submarines, 8 tenders to torpedo fleet, 4 gunboats, 9 miscellaneous ships, 8 colliers, 1 oil tanker, and 3 tugs, or a total of 98 vessels of all classes, with a tonnage displacement of 576,634. On November 1 the ships assembled at New York were inspected by the Secretary of the Navy and on the follow-

ing day President Taft reviewed the fleet both at anchor and as it steamed out of the harbor in fleet formation. The review was a complete success and was an object lesson to the people in that there was assembled the largest and most powerful collection of vessels ever possible under the United States flag.

The force assembled at San Diego on October 20 consisted of 1 battleship, 5 armored cruisers, 2 cruisers, 8 destroyers, 2 torpedo boats, 2 submarines, 1 gunboat, 1 tender to submarines, and 4 miscellaneous ships, with a total tonnage displacement of 117,957. While this review was much smaller than that on the Atlantic coast, it was eminently successful and was particularly interesting because it contained the battleship *Oregon*, recently constructed.

NAVAL MILITIA. In 1911 23 States and the District of Columbia supported naval militia organizations aggregating a force of approximately 6800 men and 600 officers. Organizations during the year were formed in the States of Washington, Oregon, and Florida, and in the States of Pennsylvania and Michigan two new divisions were mustered in. During the year certain naval military organizations were sent on their annual summer training cruises on board the battleships of the Atlantic Fleet, thus affording them an opportunity of training with the latest and best naval material and bringing them into close touch with the regular navy. To the naval militia service are assigned 34 vessels. See *AERONAUTICS*.

APPROPRIATIONS. The final estimates for the expenses of the navy for the fiscal year 1912 amounted to \$129,248,709. There was appropriated by Congress \$129,178,169. The estimates for 1913 amounted to \$129,107,012.

POST OFFICE

For the first time since 1883 the report of the Post Office Department in 1911 showed a surplus instead of a deficit. The revenues for the fiscal year ending June 30, 1911, amounted to \$237,879,823 and the expenditures to \$237,660,705, leaving a surplus of \$219,118. At the beginning of the present administration in 1909 the postal service was in arrears to the extent of \$17,479,770, which was the largest deficit on record. In two years this was changed to a substantial surplus. This gain was not made by curtailing postal facilities. On the contrary, important extensions were made during the year in every branch of the service. The amount expended for salaries was approximately \$4,000,000 greater than in 1909. The average annual salaries for rural carriers was increased from \$869 to \$967; for post office clerks, \$979 to \$1082; for city letter carrier, from \$1021 to \$1084; and for railway postal clerks, from \$1168 to \$1183.

The most important event of the year was perhaps the successful organization of the postal savings system. (See *POSTAL SAVINGS BANKS*.) The Postmaster-General in his annual report continues to advocate the establishment of a parcels post (q. v.). He also urges the readjustment of postage rates, especially in regard to second-class mail, in the handling and transportation of which there is at the present time a loss. For an account of the controversy in connection with this recommendation, see below *Congress*.

In accordance with a plan perfected in 1910

assistant postmasters have been recommended to the Civil Service Commission for classification as rapidly as it is possible to ascertain by careful investigation their qualifications for efficient service. The effect of classification has been to stimulate these officers in the performance of their duties. The Postmaster-General points out that the same consideration which led to the classification of the position of assistant postmasters in presidential post offices applies with equal force to the postmastership itself. He says that a full measure of efficiency in the postal service cannot be expected so long as the postmasters are subject to political control.

The crusade against the fraudulent use of the mails begun in 1910 was continued during the year. There were altogether 529 indictments and in these cases 184 convictions were secured, with but 12 acquittals. The swindlers thus convicted had fraudulently obtained from the public many millions of dollars.

The total revenue from the operation of the Post Office Department in 1911 was \$237,879,823. Of this amount \$213,666,448 came from the sale of stamps, stamped envelopes, newspaper wrappers, and postal cards; \$8,933,098 from second-class postage; \$5,049,918 from third- and fourth-class postage, and \$4,406,843 from receipts from box rent in post offices.

PENSIONS

The total number of pensioners on the rolls on June 30, 1911, was 892,098. Of these 529,884 were survivors of the Civil War. There were 279 pensioners (widows) of the War of 1812; 1387 survivors and 2629 widows of Indian wars; 1639 survivors and 5982 widows of the War with Mexico; 23,383 survivors and 1217 widows of the War with Spain. In the regular army were 13,757 invalids and 2799 widows. The total number of pensioners on the rolls at the close of the fiscal year 1910 was 921,083. The losses of the roll from June 30, 1910, to June 30, 1911, were 55,185 and the gains were 26,200, or a net loss of 28,985. The survivors of the Civil War whose names were dropped from the roll during the year on account of death numbered 35,243.

The total amount paid as pensions during the fiscal year 1911 was \$157,325,160, as compared with \$169,974,056 in the fiscal year 1910. The total amount paid by the United States for pensions since the foundation of the government to June 30, 1911, was \$4,230,381,730. Of this amount there has been paid to survivors of the Civil War and their descendants \$3,985,719,836. The greater number of soldiers of the Civil War who received pensions received them under the act of February 6, 1907, which provides for an increase of pension after the ages of seventy and seventy-five years. From the date of its approval to June 30, 1911, there were 629,605 applications for pension or increase of pension under this act. During the fiscal year 1911 55,167 certificates were issued under this law.

The Commissioner of Pensions in his annual report gives a summary of the surviving officers of the Civil War. It appears from this summary that the number was as follows on June 30, 1911: Major-generals, 2; brigadier-generals, 13; colonels, 173; lieutenant-colonels, 423; majors, 758; captains, 5844; first lieutenants, 7697; second lieutenants, 5834, or a total of

20,844 surviving officers of the Civil War on the pension rolls.

The last pensioner of the Revolutionary War died April 25, 1911, aged ninety years. This was Mrs. Phebe M. Palmeter, who was pensioned by a special act of Congress as the daughter of Jonathan Wooley. The last widow pensioner of that war was Esther S. Damon of Plymouth Union, Vt., who died November 11, 1906, aged ninety-two years.

During the year 124,319 pension claims were adjudicated, of which 92,274 were admitted, 30,980 were rejected, and 1065 approved in which no certificates were issued because they would not have benefited the applicants.

The amount expended for pensions for the navy in the fiscal year 1911 was \$5,392,485, as compared with \$5,335,457 in 1910. The law provides that navy pensions shall be paid from the income of the navy pension fund, so far as the same shall be sufficient for that purpose. The income of the fund during the fiscal year 1911 amounted to only \$387,159, a small fraction of the sum required for payment of these pensions.

At the close of the year there were pending 36,793 claims. Of these 25,153 were Civil War claims; 8386 claims for the War with Spain; 189 Mexican War claims; 173 Indian War claims; 1 claim War of 1812; 17 old wars, and 2874 claims of the regular army.

NATURALIZATION

The number of certificates of naturalization issued during the fiscal year 1911 was 55,329. The number of applications denied was 9017, making the total number of applications made 64,346, compared with 46,987 in 1910. The number of declarations of intention filed during the year was 186,157. The number of petitions for naturalization filed was 73,644. There was an increase of about 11 per cent. in the declarations and 33.8 per cent. in the petitions filed during the year as compared with those filed in 1910. By far the largest number of certificates were issued in New York. These numbered 11,158. Other States in which a large number of certificates were issued were: Pennsylvania, 6828; Illinois, 5162; New Jersey, 3040; Wisconsin, 2626; Massachusetts, 2879; Minnesota, 2579; California, 2742, and Michigan, 2140.

PATENTS

During the fiscal year 1911 65,154 applications for mechanical patents were received and 1315 for designs. The number of patents granted was 34,428. These included reissues and designs. The number of patents that expired was 22,546. The Commissioner of Patents in his annual report urged that provision be made for more room for housing the Patent Office. The present structure is not fireproof and is filled with tons of inflammable material, comprising the secret archives of the office, which if destroyed would work untold damage to the commercial interests of the country.

BUREAU OF MINES

The Bureau of Mines was established by act of Congress approved May 16, 1910. Its main object is to aid in lessening the losses of life and waste of resources in the mining, quarrying, metallurgical, and other mineral industries of

the country. To it was transferred by act of Congress the work hitherto done by the Geological Survey in analyzing and testing coals, lignites, and other minerals for substitutes, and investigating the causes and means of preventing mine explosions.

The investigating work of the bureau during 1911 related mainly to the study of fuels belonging to or used by the government and inquiry into the causes and means of prevention of mine accidents. The first of these had primarily to do with the purchase for the use of the government of coal, aggregating in cost about \$8,000,000; the most efficient methods of using this coal at the various heating, power, and lighting plants of the government and on board the government ships; and the safest and most efficient methods of storing coal at navy stations, army posts, etc. More than 10,000 samples of coal were analyzed in the laboratories of the bureau. The fuel investigations also included the testing and analyzing of a large number of samples of fuel oil, and the preparation of specifications for use by the government in the purchase of both oil and coal for fuel purposes.

The investigation into the causes and means of preventing mine accidents extended during the year as rapidly as circumstances would permit. The chief aim of the investigation has been to determine the cause of mine explosions; to make safer the use of explosives and electricity in mines; and to reduce the risks through falls of roof, the use of open lights, and other mining conditions. It was found early in the examination of mine disasters that it was necessary to provide facilities for the engineers of the bureau in entering mines where the disasters had occurred while these mines were still full of poisonous gases. These are useful in rescuing entombed miners. To meet this need there were established by the bureau six mine-rescue or mine-safety stations, one each at Pittsburgh, Pa., Knoxville, Tenn., Birmingham, Ala., McAlester, Okla., Urbana, Ill., and Seattle, Wash. There were also purchased seven mine-safety cars, which were equipped as far as practicable with mine-rescue and fire-fighting apparatus. In spite of the newness of the work and the preliminary difficulties, the progress made in behalf of greater safety in mining has been gratifying. The bureau is winning hearty cooperation of mine workers, mine owners, State mine inspectors, and manufacturers of mine explosives and mine equipment. In coal mines black powder is rapidly giving way to safer explosives, and safety lamps and other appliances are being increasingly used; improvements in electrical installations are under investigation; mine explosions are being better understood and are becoming less frequent; mine-safety demonstrations in connection with the work of the stations and cars have been witnessed and participated in by more than 100,000 miners; over 14,000 miners have received some training in rescue and first-aid efforts, and more than 500 sets of mine-rescue equipment have been installed in the large coal mines in different parts of the country.

CUSTOMS

The prosecutions for customs frauds continued during 1911. In June frauds were disclosed in the importation of laces from Syria on false invoices. Several merchants in New

York were indicted on charges of systematic undervaluation of goods and were sentenced to pay large fines. Three members of the art importing firm of Duveen Brothers, who were arrested in 1910 on the charge of defrauding the government by undervaluation to the amount of \$5,000,000, on March 22 pleaded guilty to the charge. Each paid the maximum fine of \$10,000 and made a settlement with the government, depositing \$1,200,000 in the United States treasury in discharge of all claims against the firm for duties alleged to have been underpaid.

DIPLOMATIC SERVICE

The year 1911 was notable for the unusually large number of changes made in the diplomatic service both in representatives to the United States and those representing the United States in foreign countries. On January 7 the resignation of Oscar S. Straus as ambassador to Turkey was accepted by President Taft, and W. W. Rockhill, previously ambassador to Russia, was appointed to succeed him. To take Mr. Rockhill's place at St. Petersburg the President appointed Curtis Guild of Massachusetts. The resignation on April 14, 1911, of David J. Hill as ambassador to Germany made it necessary for the President to appoint his successor, and John G. A. Leishman, previously ambassador to Italy, was appointed to fill this vacancy. To fill the place thus left vacant, Thomas J. O'Brien was transferred to Italy, and Charles Page Bryan, previously minister to Belgium, was appointed to succeed Mr. O'Brien as ambassador to Japan. In November Irving B. Dudley (q. v.), ambassador to Brazil, died, leaving one ambassadorship vacant at the close of the year. Of the ambassadors appointed previous to 1910 Richard C. Kerens, Austria-Hungary, Robert Bacon, France, Whitelaw Reid, Great Britain, and Henry L. Wilson, Mexico, retained their posts in 1911. At the close of the year Mr. Bacon announced that he would resign in 1912, as a

result of having been elected one of the overseers of Harvard University. The ambassadors to the United States from foreign countries remained the same in 1911 as in the previous year, except that Don Francisco de la Barra, ambassador from Mexico, was succeeded by Don Gilberto Crespo y Martínez, and Baron Rosen, ambassador from Russia, was succeeded by George Bakhmeteff. Among the ministers representing the United States in foreign countries there were many changes. In most cases, however, these were transfers in the nature of promotions from one country to another. With Nicaragua diplomatic relations, which had been interrupted for several years, were resumed, and a minister was appointed to represent the United States in that country. This was Elliott Northcott of West Virginia, who subsequently was transferred to Venezuela, being succeeded in Nicaragua by George T. Weitzel of Missouri. There were many new ministers from foreign countries to the United States. There were new representatives from Argentina, Belgium, Colombia, Cuba, Haiti, Honduras, Nicaragua, Panama, and Uruguay.

A bill providing for the purchase or erection of adequate buildings for American embassies, which has been before Congress in one form or another for many years, was finally passed at the last session of the Sixty-first Congress. By this bill provision was made that not more than \$500,000 shall be expended in any fiscal year for the purchase or erection of such embassies. The cost for the acquisition of sites and buildings and for the construction, alteration, repairing, and furnishing of buildings at each place is not to exceed the sum of \$150,000. The bill was passed largely as a result of the efforts of the American Embassy Association, which for years has labored to bring about this result.

The tables below give the American and foreign diplomatic representatives in 1911:

AMBASSADORS

Country	Accredited by United States		Accredited to United States
Austria-Hungary	Richard C. Kerens, Mo.,	1909	Baron Hengelmüller von Hengervár..1902
Brazil			Domicio da Gama.....1911
France	Robert Bacon, Mass.,	1909	J. J. Jusserand.....1903
Germany	John G. A. Leishman, Pa.,	1911	Johann Heinrich, Count von Bernstorff.....1908
Great Britain	Whitelaw Reid, N. Y.,	1905	James Bryce.....1907
Italy	Thomas J. O'Brien, Mich.,	1911	Marchese Cusani-Confalonieri.....1910
Japan	Charles Page Bryan, Ill.,	1911	Viscount Uchida Yasuya.....1909
Mexico	Henry L. Wilson, Wash.,	1911	Don Gilberto Crespo y Martínez.....1911
Russia	Curtis Guild, Mass.,	1911	George Bakhmeteff.....1911
Turkey	W. W. Rockhill, D. C.,	1911	Youssef Zia Pasha.....1910

MINISTERS PLENIPOTENTIARY

Argentina Republic	John Ridgely Carter, Ind.,	1911	Rómulo S. Naón.....1911
Belgium	Larz Anderson, D. C.,	1911	E. Havenith.....1911
Bolivia	Horace G. Knowles, Del.,	1910	Ignacio Calderón.....1904
Chile	Henry P. Fletcher, Pa.,	1909	Eduardo Suarez.....1911
China	William J. Calhoun, Ill.,	1909	Chang Yin Tang.....1909
Colombia	James T. DuBois, Pa.,	1911	Gen. Pedro Nel Ospina.....1911
Costa Rica	Lewis Einstein, N. Y.,	1911	Joaquín Bernardo Calvo.....1899
Cuba	Arthur E. Beaupré, Ill.,	1911	Antonio Martín Rivero.....1911
Denmark	Maurice F. Egan, D. C.,	1907	Count Moltke.....1908
Dominican Republic	W. W. Russell, D. C.,	1910	Emilio C. Joubert.....1909
Ecuador	Evan E. Young, S. D.,	1909	Rafael M. Arizaga.....1910
Greece	George H. Moses, N. H.,	1910	L. A. Coromilas.....1909
Guatemala	R. S. Reynolds Hitt, Ill.,	1905	Luis Toledo Herrarte.....1907
Haiti	Henry W. Furness, Ind.,	1911	Solon Méno.....1911
Honduras	Charles Dunning White, N. J.,	1910	Fausto Davila.....1911
Morocco	Fred W. Carpenter, Cal.,		
Netherlands	Lloyd Bryce, N. Y.,	1911	Jonkherr J. Loudon.....1908
Nicaragua	George T. Weitzel, Mo.,	1911	Salvador Castrillo, Jr.....1911
Norway	Laurits S. Swenson, Minn.,	1911	H. H. Bryn.....1910

MINISTERS PLENIPOTENTIARY (Continued)

Panama.....	H. Percival Dodge, Mass.,	1911	§Juan Brin.....	1911
Persia.....	Charles W. Russell, D. C.,	1909	§Mirza Ali Kuli Khan.....	1910
Peru.....	H. Clay Howard, Ky.,	1911	Felipe Pardo.....	1905
Portugal.....	Edwin V. Morgan, N. Y.,	1911	Viscount de Alte.....	1902
†Rumania.....	John B. Jackson, N. J.,	1911	.....	.....
Salvador.....	William Helmke, Kan.,	1909	Federico Mejia.....	1907
Siam.....	Hamilton King, Mich.,	1903	Phya Akharañ Varadhara.....	1901
Spain.....	Henry C. Ide, Vt.,	1909	Juan de Riaño y Gayangos.....	1910
Sweden.....	Charles H. Graves, Minn.,	1905	Count J. J. Albert Ehrensward.....	1911
Switzerland.....	Henry S. Boutell, Ill.,	1911	Paul Ritter.....	1909
¶Uruguay.....	Nicolay A. Grevstad, Ill.,	1911	Carlos María de Pena.....	1911
Venezuela.....	Elliot Northcote, W. Va.,	1911	P. Ezequiel Rojas.....	1909
Minister and Resident Consul to Liberia, W. D.	Crum, S. C., appointed.....	1910		

* Accredited also to Montenegro. † Accredited also to Luxemburg. ‡ Accredited also to Servia and Bulgaria. ¶ Accredited also to Paraguay. § Chargé d'Affaires.

CABINET

There were two notable changes in President Taft's cabinet during the year. On March 7 Richard L. Ballinger, Secretary of the Interior, resigned, and was succeeded by Walter L. Fisher (see *Administration*). Jacob M. Dickinson, Secretary of War, was obliged to resign that office for personal reasons, and Henry L. Stimson of New York (q. v.) was appointed to succeed him. The cabinet consisted of the following members: Secretary of State, Philander Chase Knox; Secretary of War, Henry Lewis Stimson; Attorney-General, George Woodward Wickersham; Postmaster-General, Frank Harris Hitchcock; Secretary of the Navy, George von Lengerke Meyer; Secretary of the Interior, Walter Lowrie Fisher; Secretary of Agriculture, James Wilson, and Secretary of Commerce and Labor, Charles Nagel.

FEDERAL JUDICIARY

The death of Associate Justice Harlan caused the only vacancy which occurred in the United States Supreme Court in 1911. A successor to Justice Harlan had not been appointed at the end of the year. The Supreme Court consisted in 1911 of the following members: Chief Justice, Edward D. White of Louisiana; Associate Justices, Joseph McKenna of California, Oliver W. Holmes of Massachusetts, William R. Day of Ohio, Horace H. Lurton of Tennessee, Charles E. Hughes of New York, Willis Van Devanter of Wyoming, and Joseph Rucker Lamar of Georgia. The Supreme Court made some notable decisions during the year. Those which attracted the most attention were those calling for the dissolution of the American Tobacco Company and the Standard Oil Company. For an account of these decisions see those articles. See *TRUSTS* and *RAILWAYS* for other decisions.

An important step in remedying the evils of delay in legal procedure was taken in June, when a committee of three of the justices of the Supreme Court of the United States were appointed to undertake a revision of the rules of practice in federal courts of equity. The chairman of the committee was Chief Justice White. The other members were Justice Lurton and Justice Van Devanter. While the remedies suggested by this committee will apply to a limited field in legal jurisdiction, it is a field where reform is very especially needed and where much can be accomplished by comparatively small changes. In addition, the example set by the action of the Supreme Court is likely to be followed by State courts and it may prove

a starting point for radical revision of the American judicial procedure.

As the result of the Congressional act passed in 1910 the circuit courts of the United States were abolished, and their functions were assumed by the United States district courts.

TREATIES

The most important treaties during the year were those providing for complete arbitration between the United States, Great Britain, and France, described in the article *ARBITRATION*.

In March the Senate ratified by unanimous vote the new treaty negotiated between the United States and Japan by President Taft, Secretary Knox, and the Japanese government. It was necessary to negotiate a new treaty on account of the fact that a clause of the present treaty, though satisfactory when originally drawn, had come to be a source of irritation to the Japanese people and government. This clause was as follows: "It is, however, understood that the stipulations contained in this and the preceding article do not in any way affect the laws, ordinances, and regulations with regard to trade, the immigration of laborers, police, and public security which are in force or which may hereafter be enacted in either of the two countries." The phrases to which the Japanese government objected were "the immigration of laborers" and "which may hereafter be enacted." These phrases expressly affirm the right of the United States to exclude Japanese laborers from that country. The Japanese government complained that no such provision was made in treaties with European powers, and they objected to being differentiated in this way from other civilized nations of the world. The new treaty omits the provision relating to immigration. In the opinion of President Taft the agreement which exists between the two governments in the form of exchange of notes sufficiently protects the United States in the exercise of its right to regulate Japanese immigration. He therefore urged the ratification of the treaty.

In January a convention was signed by Secretary Knox and Gen. Juan E. Paredes, representative of Honduras, which had for its intention the financial rehabilitation of that country, with the United States as sponsor and guarantor. This action was in harmony with the recommendations made in the message of President Taft of December, 1910, when he declared that a strong Honduras would tend immensely to the progress and prosperity of Cen-



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HENRY L. STIMSON
Secretary of War



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WALTER L. FISHER
Secretary of the Interior

TWO NEW MEMBERS OF PRESIDENT TAFT'S CABINET IN 1911

tral America. The agreement provides in effect a loan of \$10,000,000 to Honduras to be made by J. P. Morgan & Company, with the loan to be secured by the Honduran customs revenue. In case of any friction occurring between the financial syndicate and the government of Honduras, provision is made for the adjustment of difficulties by the submission of the question to the heads of the two governments involved. The debt of Honduras is estimated at about \$112,000,000, the accumulation of principal and interest on four loans made at various times since 1867. In 1909 J. P. Morgan & Company entered into arrangements with the holders of Honduran bonds in Europe by which, if the settlement of the loan then proposed was effected through the auspices of the United States, 15 per cent. of the value of the bonds would be paid. The loans procured by Honduras since 1867 were to have been applied to the construction of an inter-oceanic railway joining the Atlantic and Pacific seacoasts of the country at Puerto Cortés and the Bay of Fonseca. The frequent changes of administration and the alleged misappropriation of funds obstructed the progress of this railway. Of the loan obtained, as noted above, by J. P. Morgan & Company, it is intended to utilize about \$8,000,000 toward the completion of this railway.

A similar treaty was negotiated with Nicaragua in June but the Senate had not ratified these treaties at the close of the year.

The fur seal controversy, which for nearly twenty-five years has been the source of serious friction between the United States and the powers bordering on the North Pacific Ocean, whose subjects have been permitted to engage in pelagic sealing against the fur seal herds, which have their breeding grounds within the jurisdiction of the United States, was satisfactorily adjusted by the conclusion of a convention entered into between the United States, Great Britain, Japan, and Russia on July 7, 1911. This convention is, in effect, an international game law for the protection of seals.

CONGRESS

SIXTY-FIRST CONGRESS. The Sixty-first Congress met in its third and last session on December 5, 1910. No action was taken on important legislative measures before the adjournment for the holiday recess. The President's message containing a résumé of the foreign relations of the United States and containing recommendations for economy in administering the affairs of the government was received and read on December 6. On January 5 both branches of Congress reassembled after recess.

HOUSE RULES. The first important action of the House was in relation to the rules. On January 5 the majority of the House took action directly in contradiction to that taken on the memorable struggle to change the rules, which ended on March 19, 1910. At that time the insurgent Republicans, supported by the Democrats, accomplished three results: First, they substituted for an arbitrary rules committee, selected by the Speaker, one selected directly by the House; second, they established a precedent that a motion to vacate the chair, that is, to depose the Speaker, is a motion of the highest privilege and therefore always in order; and third, they secured from the House, against the will of Speaker Cannon, a ruling that a motion to change the rules of the House is in

order at any time. On January 5 Representative Fuller of Illinois, a Republican, offered a resolution to change a rule of the House. Representative Mann of Illinois, one of the most conspicuous opponents of the action taken in March, 1910, made a point of order that this resolution was not privileged. The Speaker thereupon made a ruling in which he declined to follow the precedent set by the House in March, 1910. He declared that if the chair followed the construction placed by the majority of the House at the last session, the chair would overrule the point of order. He said: "However, the House is now in good temper. There is no election pending in the near future. The great press of the country and the great leaders of the respective parties are quiet. We are not excited. . . . The chair declines to follow the judgment of the House at the last session of this Congress at which it made the precedent. The chair therefore in effect appeals to the House from the decision of that same House made in high excitement when the waves of partisanship were high." In a vote to sustain or reject the ruling of the Speaker the regular Republicans consistently supported him. The insurgent Republicans and a group of insurgent Democrats voted to sustain the precedent, but the regular Democrats, who follow party leaders and were particularly insistent in overruling the decision of the Speaker in March, 1910, repudiated their former action. It is therefore due to them that the precedent established at that time is overturned.

THE LORIMER CASE. On January 9 Senator Beveridge presented in the Senate the minority report of the committee on privileges and elections, declaring that Senator Lorimer was not legally elected to the Senate of the United States. Discussion of this case was carried on in the Senate during January and February.

On February 3 Senator Root made what was probably the most vigorous and convincing speech in support of the resolution declaring the seat of Senator Lorimer vacant. He went carefully over the evidence and insisted on the weakness, even from a technical point of view, of Mr. Lorimer's defense. He pointed out that the Senate in forming its judgment was bound, not by technicalities of the law courts, but by the laws of moral intelligence. The speech was listened to with profound interest by his colleagues in the Senate and by listeners in the galleries.

A vote was taken on the Lorimer resolution on March 4. It was defeated by 46 to 40. Thirty-six Republicans and 10 Democrats supported Mr. Lorimer, while 22 Republicans and 18 Democrats voted for his exclusion. The division, especially among the Republicans, was along the lines separating the "stand-pat" senators from the progressives or insurgents. Voting against the resolution were found such conservative senators as Senators Burrows, Carter, Depew, Guggenheim, Hale, Heyburn, and Penrose, while among those who voted for the resolution were progressive Senators Beveridge, Bourne, Bristow, Clapp, La Follette, Cummins, and Nelson. Among those who voted in favor of Senator Lorimer were ten senators whose terms expired with the Sixty-first Congress. The close vote was, in general, a surprise, as it had been thought that the supporters of Senator Lorimer would be able to

muster greater strength than was shown in the final vote.

TARIFF BOARD. The House passed on January 30 a bill to establish a permanent, non-partisan tariff board. The measure as finally adopted was a compound of two bills, one introduced by Representative Longworth of Ohio and the other by Representative Dalzell of Pennsylvania. It provided that the tariff board should be composed of five members, appointed by the President and removable by him. The tenure of office was so arranged as to make the board a continuing body, unaffected as a whole by political changes. Its function was to make investigations concerning matters affecting the tariff. These investigations were to be with special reference to the cost of production, but they were not to be confined to that. The bill provided in addition that the information that the board is entitled to secure includes all other facts which may be necessary or convenient in lessening import duties or in aiding the President and other officers of the government in the administration of the customs laws. The measure further required that the board should also make investigations of any such subjects whenever directed by either house of Congress. It was provided that the board, under the direction of the President, should report upon the effect of tariff laws or bounty laws as enacted in foreign countries. It took measures to safeguard information thus obtained from any individual or company so that it should not be available for use by any competitor or rival. The board was given power to subpoena witnesses, administer oaths, and to require the production of pertinent documents. The board thus created was designed to supersede the tariff board created by the terms of the Payne-Aldrich tariff act. This bill passed the Senate, but amendments having been made, it was obliged to go to conference and Congress adjourned before action could be taken and the bill agreed upon.

DIRECT ELECTION OF SENATORS. On January 11 Senator Borah presented the report of the committee on Judiciary favoring the constitutional amendment providing for the election of senators by direct vote of the people. This resolution was defeated on February 28 by a margin of four votes. On the roll call 54 senators voted in favor of the resolution and 33 against it. Such a resolution, however, requires a two-thirds vote, and the measure failed for lack of four votes. The resolution was practically defeated by the votes of Southern senators who, while they favored the proposal for direct election of senators, declined to vote for the amendment incorporated in it which provided that the control of senatorial elections should remain in the hands of the federal government. The resolution in its original form provided that the control of elections should be taken from the federal government, where it now reposed by Section 4 of Article 1 of the Constitution, and placed in the hands of the State legislatures. The Southern senators who voted against it expressed the fear of negro domination if there should be federal control of the elections.

CANADIAN RECIPROCITY BILL. Representative McCall of Massachusetts on January 28 introduced the Canadian Reciprocity bill in the House. It was debated until February 14, when it was passed by a vote of 221 to 92. See **TARIFF.**

Although its passage was expected it had several notable aspects. It was the only example under the new rules of the House of the passage of a measure to which the Speaker was actively opposed. Its passage also indicated a change in public sentiment toward trade relations with foreign countries. The bill was passed by a vote of about 2 to 1. Its passage was insured by the votes of Democrats, of whom nearly every member in the House voted for the bill. A majority of the Republicans voted against the measure and those voting against were in proportion of two regulars to one insurgent. The insurgents from Wisconsin and Minnesota were divided in the voting and those from Iowa, Nebraska, and Kansas voted against the bill. In general, the representatives of the great agricultural States of the Middle West were found in opposition to the bill. It did not reach a vote in the Senate.

SECOND-CLASS POSTAGE. An attempt of the Postmaster-General to have passed a law increasing the postage on second-class mail matter attracted wide attention chiefly from the strenuous opposition made by publishers to the proposed increase. The provision to increase the rate was made not in a separate bill but in a "rider" attached to the Post Office Appropriations bill. The "rider" was attached when the Appropriations bill was in the Senate committee on post offices and post roads and the action was taken without notice to the publishers. The "rider" provided that the rate of postage on the reading pages of the periodicals should continue to be one cent a pound, while in the case of any periodicals except newspapers the rate on "sheets containing in whole or part any advertisement with a display descriptive or textual" should be four cents a pound. Further exception was made in publications mailing less than 4000 pounds of each issue. These were not liable to the increased rate.

When the Post Office Appropriations bill was reported to the Senate through the committee on post offices and post roads, Senator Penrose, chairman of the committee, announced that the "rider" increasing the rate of postage on the advertising pages of magazines and periodicals would, with the consent of the Senate, be abandoned.

In place of the proposed legislation relating to rate of postage on second-class mail matter a joint resolution was passed by the Senate and the House providing for a commission to investigate the cost of transportation and handling of second-class mail. The President was authorized to appoint this commission, which is to consist of three persons, one of whom is to be a judge of the Supreme Court of the United States and the other two are to be men who hold no office. The sum of \$25,000 was appropriated to pay the expenses of this commission.

OTHER MEASURES. Among the important measures passed in this session of Congress in addition to those mentioned above, are the following:

The establishment of the policy of building and purchasing embassies and legations in foreign capitals, and appropriating not more than \$500,000 a year for this purpose; a system of federal inspection of locomotive boilers and the compulsory adoption of safety devices; the lessening of the cost of litigation by simplifying proceedings on writ of



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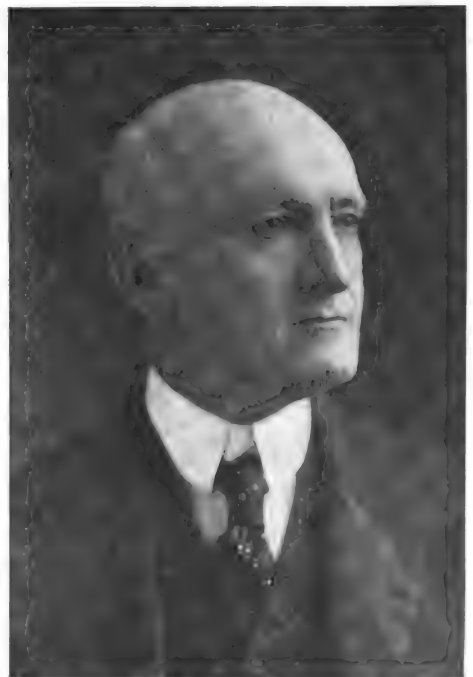
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OSCAR W. UNDERWOOD
ALABAMA



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JAMES R. MANN
ILLINOIS



SAMUEL W. MCCALL
MASSACHUSETTS

FOUR LEADING MEMBERS OF THE HOUSE OF REPRESENTATIVES IN 1911

error or of certiorari; the facilitation of the registration of trade marks; the creation of an Appalachian and White Mountain forest reserve; provision for the fortification of the Panama Canal by the appropriation of \$3,000,000 for the purpose; authorization by House resolution to appoint a commission to investigate the white phosphorous match evil under the authority of the President; the authorization of the President to invite the nations of the world to take part in the Panama-Pacific International Exposition in 1915; the passage of a measure making compulsory respect for the dignity of the military uniform in places of public amusement; provision for two new battleships of about 29,000 tons each; the appointment of a congressional committee to investigate conditions in Alaska, and ratification of the treaty of commerce and navigation with Japan. Among the important measures which failed to pass were the following: The Canadian reciprocity agreement; the permanent tariff board bill, which was passed by the Senate, but was defeated by a filibuster in the House; the postal savings bank bill; the bill for congressional reapportionment which provided for a House of 433 members; this was passed by the House, but failed in the Senate; a resolution for the admission of Arizona and New Mexico to statehood; the constitutional amendment providing for the election of senators by popular vote; the Sulloway pension bill, which sought to increase the pension budget by nearly \$50,000,000 a year.

On March 4 at the conclusion of the session of the Sixty-first Congress, President Taft issued a brief proclamation calling upon the new Congress to assemble at noon on April 4. His proclamation stated the fact that the agreement with Canada regarding reciprocal tariff legislation had made it the duty of the President to use his best efforts to make the arrangement operative, and since the House had passed the desired bill and the Senate had not reached a vote on it, it seemed to him that an extraordinary occasion had arisen which justified the calling of a special session.

SIXTY-SECOND CONGRESS. The convening of the special session of the Sixty-second Congress on April 4 was marked by several features of unusual interest. It was the first time that a Democratic House of Representatives had assembled for sixteen years and it was the first time in the history of the government that a Democratic House had been called in extra session by a Republican President to act on an administrative measure which a Republican Senate in the previous session of Congress had refused to consider. It had been foreshadowed for many months that Champ Clark of Missouri would be elected Speaker. He declared in his speech, on assuming the Speaker's chair, that "We are this day put upon trial and the duty devolves upon us to demonstrate, not so much by fine phrases as by good work, that we are worthy of the confidence imposed in us by the voters of the land and that we are worthy of their wider confidence." He outlined the promises that the party should fulfill. These included an intelligent tariff revision downward, action looking to a constitutional amendment for the election of United States senators by popular vote, wise changes in the rules of the House, economy in public expenses, the publication of political campaign contributions before elections, and the admission of Arizona and New Mexico

as States. Through inadvertence Mr. Clark failed to mention among these questions for consideration the one for which the session had been specially convened, that of Canadian reciprocity. The first work of the Democratic majority was to establish the rules under which the deliberations would be conducted. Most of these did not differ materially from the rules of the Sixty-first Congress except that they provided for the election of committees instead of their appointment by the Speaker. "Calendar Wednesday" was continued, and the rule for the discharge of committees was broadened in scope.

ORGANIZATION OF THE HOUSE. The Democratic representatives on April 1 met in caucus and prepared for the opening of the Sixty-second Congress on April 4. The committee assignments, which had been prepared beforehand by the ways and means committee, were accepted without friction. Rules were adopted for the Sixty-second Congress differing in some important respects from those of the Sixty-first. A programme of legislation was presented and adopted. Eight subjects were contained in this programme: First, the election of United States senators by the people; second, publicity of campaign funds before and after election; third, various matters of tariff and revenue legislation; fourth, reapportionment of seats in the House under the Thirteenth Census; fifth, resolutions having to do with the investigation of the executive departments; sixth, the admission of Arizona and New Mexico as States; seventh, any deficiency appropriations that conditions might require; eighth, resolutions relating to the District of Columbia. The changes in the rules were intended to facilitate a radical cutting down of expenditures and a successful handling of particular parts of the tariff without obstructive amendments, which did not belong to the particular matter in hand. The chairmen of the principal committees appointed were as follows: Ways and means, Oscar W. Underwood of Alabama; appropriations, John J. Fitzgerald of New York; judiciary, Henry D. Clayton of Alabama; interstate commerce, William C. Adamson of Georgia; rivers and harbors, Stephen M. Sparkman of Florida; agriculture, John Lamb of Virginia; foreign affairs, William Sulzer of New York; military affairs, James Hay of Virginia; naval affairs, Lemuel P. Padgett of Tennessee; post office and post roads, John A. Moon of Tennessee; public lands, Joseph T. Robinson of Arkansas; Indian affairs, John H. Stephens of Texas; Territories, Henry D. Flood of Virginia; insular affairs, William A. Jones of Virginia; banking and currency, Arsene P. Pujo of Louisiana; coinage, weights, and measures, Thomas W. Hardwick of Georgia; merchant marine and fisheries, Joshua M. Alexander of Missouri; public buildings and grounds, Morris Sheppard of Texas; pensions, William Richardson of Alabama; District of Columbia, Ben Johnson of Kentucky; irrigation, William R. Smith of Texas; immigration, John L. Burnett of Alabama. The chairmanship of the important committee on rules was given to Robert L. Henry of Texas.

The Republicans of the House chose James R. Mann of Illinois as leader. He declined to serve on any committee and gave his whole energy to the minority leadership. He was authorized by the Republican caucus, held prior to the session, to assign Republican members to the

minority places left for them on the various committees by the Democratic caucus. The most important of these appointments were Mr. Payne of New York as the leading Republican member of the ways and means committee, and former Speaker Cannon as the chief Republican on the appropriations committee. In preparing his assignments Mr. Mann gave full recognition to the Republican insurgents of the House. The Democratic leaders showed remarkable ability in organizing and within a week the business of the House was well under way.

ORGANIZATION OF THE SENATE. As a result of the elections of 1910 the Republican majority in the Senate was reduced at the opening of the Sixty-second Congress to a majority of only nine. As a result of the election Democratic legislatures succeeded Republican in the States of Indiana, Missouri, Minnesota, Nebraska, New Jersey, Maine, New York, Ohio, and West Virginia. A change greater than the numerical was produced as a result of these elections in the character of the Senate. Not only had the so-called "standpat" Republicans lost their leaders by the retirement of Senators Aldrich and Hale, but a number of the supporters of these leaders had also died or lost their seats. This gave large powers to the well-organized group of Republicans known as Progressives. By union with the Democrats they were in a position to control the Senate and their power was shown several times throughout the session. In the reorganization of the committees, the Progressives, whose demands for committee representation had hitherto been coldly received, were able to force the committee on committees to give them valued and important places. This committee had as its members Senators La Follette, Bourne, Cummins, and Briestow, all senators in the Progressive wing of the party. The so-called steering committee, which has charge of the progress of legislation, included Senators Borah of Idaho and Brown of Nebraska, both Progressive. Senators Cummins and La Follette were appointed members of the finance committee. Senator Clapp of Minnesota was made chairman of the interstate commerce committee and Senator Bourne of Oregon was made a member of the post office committee. The chairman of the finance committee, the most powerful committee of the Senate, became Senator Penrose of Pennsylvania, who succeeded Senator Aldrich on the latter's retirement.

That the Democratic senators were not wholly in harmony was shown in the election of a leader to the opposition. Lines developed not unlike those between the insurgents and regulars in the Republican party. The candidate of the regular element, composed in the main of the older senators, was Senator Martin of Virginia, while the other element, comprising most of the newly elected senators, desired that Senator Shively of Indiana should be the Democratic leader. Senator Martin was finally chosen. Differences among the Republican senators prevented the election of the Speaker pro tempore, who presides over the deliberations of the Senate in the absence of the Vice-President. Senator Frye of Maine, who had served many years in this office, had resigned on account of ill health, and it was necessary to choose his successor. Senator Gallinger of New Hampshire, one of the oldest members in point of service in the Senate, was a candidate for the place, but it was impossible to secure enough votes for his elec-

tion, and there was no president pro tempore during the entire session.

RECIPROCITY AND TARIFF MEASURES. The composition and passage of these measures is described in the article **TARIFF**. In order to preserve the record, there will be noted here merely a chronological summary of their course through Congress. The President's message urging the approval of the Canadian Reciprocity agreement was read in both branches of Congress on April 5, and on April 12 the bill was introduced by Representative Underwood, chairman of the ways and means committee. At the same time he introduced a bill placing on the free list more than 100 articles used by farmers. The Reciprocity bill was favorably reported by the ways and means committee on April 13. The general debate on the measure closed on April 20, and on the following day it was passed in the House by a vote of 266 to 89. On May 8 the House passed the **Farmers' Free List** bill without amendment by a vote of 236 to 109. The ways and means committee on June 6 reported a bill revising the wool schedule of the Payne-Aldrich tariff and on June 20, by a vote of 221 to 100, this bill was passed. In the Senate the Reciprocity measure was passed on July 22 by a vote of 53 to 27, and on July 27 by a coalition of Progressive Republicans and Democrats a compromise wool bill, intended to be a substitute for the House measure, was passed. This bill was submitted by Senator La Follette. On August 1 the **Farmers' Free List** bill was passed in the Senate by a coalition of Democrats and Progressives. As the Wool bill had received amendments in the Senate it was necessary to go into conference and on April 14 the House, by a vote of 206 to 90 adopted the bill as presented by the conference committee. The Senate on the following day passed the bill by a vote of 38 to 23. It was vetoed by the President. On August 17 Congress passed the Cotton bill, already favorably acted upon by the House, with many radical amendments. These included an amendment revising the chemical schedule. On the same day the House adopted the report of the committee on the **Farmers' Free List** bill. The President vetoed both measures. On August 18 the House failed to repass the Wool and **Farmers' Free List** bills, and on August 22 there was a similar failure in regard to the Cotton bill.

THE LORIMER CASE. The vote against the resolution declaring the seat of Senator Lorimer vacant, in the previous session, which was noted above, did not put an end to the attempt to expel him from the Senate. On April 6 Senator La Follette introduced a resolution calling for another investigation of the Lorimer bribery charges, and on June 1 the Senate voted to authorize another investigation. There was no serious opposition to the reopening of the case, as new evidence had been developed as the result of an investigation carried on by the Illinois legislature. See **ILLINOIS**.

The resolution offered by Senator La Follette, providing for a special committee for purposes of investigation instead of referring it in the usual course to the committee on privileges and elections, was defeated; and a resolution offered by Senator Martin of Virginia providing for a sub-committee appointed by the committee on privileges and elections was passed with the general understanding that the membership of that committee should be, in accordance with



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HOKE SMITH
 Georgia



BOIES PENROSE
 Pennsylvania



ROBERT M. LA FOLLETTE
 Wisconsin

FOUR UNITED STATES SENATORS PROMINENT IN 1911

the desire of the Senate at large, made up of four members who voted against the unseating of Senator Lorimer and four new senators who had not been called upon to pass on the case. See ILLINOIS.

DIRECT ELECTION OF SENATORS. The bill providing for the direct election of senators, which was not enacted into legislation in the Sixty-first Congress (see above), was reintroduced at the convening of the Sixty-second Congress, and on April 13 the House by a vote of 296 to 16 passed a bill for the direct election of Senators without federal control.

On June 12 the Senate by a vote of 64 to 24 passed a resolution in favor of amending the Constitution in such a manner as would bring about the election of United States senators by direct popular vote after the necessary approval by the legislatures of three-fourths of the States. The Bristow amendment to the resolution providing that the control of senatorial elections shall remain in the hands of the federal government was adopted, but only after a tie vote of 44 to 44 had been broken by Vice-President Sherman. As the House of Representatives had passed the resolution without such an amendment it was necessary for the bill to go into conference so that an agreement might be had. The session of Congress expired before action could be taken on the report of the conference committee. See ELECTORAL REFORM.

CAMPAIGN PUBLICITY BILL. A bill providing for the publicity of campaign expenditures was passed in the House on April 14. On July 17 the bill passed the Senate. For a discussion of this measure see ELECTORAL REFORM.

STATEHOOD BILLS. The general discussion of the legislation by which Arizona and New Mexico were admitted to statehood will be found under those States. The chronological record is as follows: On May 23 the House passed a resolution granting statehood to Arizona and New Mexico, but requiring them to vote again on certain provisions of their constitutions, and on August 8 the Senate passed the resolution with amendment requiring Arizona to vote again on the recall of judges. On August 10 the bill was accepted by the House with the Senate amendments. On August 15 the President vetoed the resolution condemning the recall of judges as "legalized terrorism." The House and Senate thereupon passed an amended resolution requiring New Mexico to simplify the process of amending her constitution, and Arizona to exclude judges from the provisions of the recall.

OTHER MEASURES. Other important acts of the Sixty-second Congress in addition to those mentioned above were the following. On May 9 the House voted to investigate the Post Office Department and the Sugar trust. On July 24 the Senate ratified the fur seal treaty. On August 14 a dissolution of the National Monetary Commission on or before January 8, 1912, was ordered by the Senate. The Senate on August 12 ordered an investigation into the election of Senator Isaac Stephenson of Wisconsin (see WISCONSIN). In addition to the investigations of the Sugar trust and the Post Office Department, inquiries were carried on during the year by committees of Congress in the operations of the Steel Corporation and the action of the President in throwing open the Chugach forest reserve (see ALASKA). For the action of

the Senate on treaties submitted during the session, see *Treaties*.

MR. BRYAN AND MR. UNDERWOOD. An interesting incident as showing the relative degree of power which Mr. W. J. Bryan has, or has ceased to retain in the Democratic party, occurred in the House in August. In an editorial published in his newspaper, *The Commoner*, Mr. Bryan virtually charged Mr. Underwood, the chairman of the committee on ways and means of the House, with attempting to prevent the revision of the iron and steel schedule because his own financial interests were involved in the iron and steel industries. The statement charged Mr. Underwood with preventing the presentation of a revision of these schedules, because of his interest in a steel company in Alabama, and declared that this was well known to several prominent Democratic representatives. Mr. Underwood read this statement to the House and then emphatically declared it to be false. He said that he had stated to the committee when it was first organized that he was willing to take up any schedule for consideration first, but that since he represented an iron and steel district and was interested personally in the manufacture of iron and steel, the committee would save him from embarrassment if they would first take up the iron and steel schedule. Representative Kitchin, who was one of those whom Mr. Bryan had quoted in support of his statement, verified the assertion of Mr. Underwood in regard to what he had told the committee. That the sympathies of the representatives were with Mr. Underwood was shown by the enthusiastic applause which greeted this statement.

CONGRESSIONAL INVESTIGATIONS. An unusual number of investigations was authorized by congressional committees during the sessions of the Sixty-second Congress. The most important of these was the investigation of the United States Steel Corporation, the results of which will be noted in the article on the subject, investigation of the operations of the Sugar trust (see TRUSTS), and investigations into the conduct of the departments of the Treasury, State, War, Navy, Post Office, Interior, Justice, Commerce, and Agriculture. In addition to these, committees were appointed to investigate the methods of the enforcement of the Anti-Trust act and the conduct of the Attorney-General in relation thereto; to investigate the postal service and ascertain specifically the amount of work done by postmasters and officials of the department; to investigate the American Woolen Company, and to investigate the affairs of the Civil Service Commission. These committees carried on their work during the summer and fall of 1911.

CONGRESSIONAL APPROPRIATIONS. The table below shows the amount appropriated in the three sessions of the Sixty-first Congress, covering the fiscal years 1911 and 1912. It will be seen from this table that the total amount appropriated in the first and second sessions was \$663,725,794 and in the third session \$634,540,561, or a total of \$1,298,318,355 for all sessions. Of the amounts appropriated the largest sum was for pensions. Following in order were sundry civil expenses, for the support of the army, for the support of the navy, and for the Rivers and Harbors bill.

Purposes for which made	1st & 2d Ses. 61st Congress, Fiscal yr. 1911	3d Session, 61st Congress Fiscal yr. 1912	No.	Gain
To supply deficiencies in appropriations...	\$ 23,045,612.11	\$ 10,028,526.84	Massachusetts	16 2
Legislative, executive, judicial expenses...	34,158,767.00	35,878,149.85	Michigan	13 1
Sundry civil expenses	106,015,198.82	135,241,935.34	Minnesota	10 1
Support of the army	95,440,567.55	93,374,755.97	Mississippi	8 None
Naval service	131,410,568.30	126,405,509.24	Missouri	16 None
The Indian service	9,266,528.00	8,842,136.37	Montana	2 1
Rivers and harbors	49,380,541.50	30,883,419.00	Nebraska	6 None
Ports & fortifications	5,617,200.00	5,473,707.00	Nevada	1 None
Support of military academy	1,856,249.87	1,163,424.07	New Hampshire	2 None
For deficiencies in postal service	Indefinite	Indefinite	New Jersey	12 2
Invalid and other pensions	155,758,000.00	153,682,000.00	New York	43 6
Consular and diplomatic service	4,116,081.41	3,988,516.41	North Carolina	10 None
Service of agricultural department	13,487,636.00	16,900,016.00	North Dakota	3 1
Expenses of District of Columbia	10,608,045.99	12,056,786.50	Ohio	22 1
For reclamation fund	20,020,000.00		Oklahoma	8 3
Reliefs and miscellaneous	3,544,798.29	1,180,678.81	Oregon	3 1
Total	\$663,725,794.84	\$634,549,561.40	Pennsylvania	36 4
			Rhode Island	3 1
			South Carolina	7 None
			South Dakota	3 1
			Tennessee	10 None
			Texas	18 2
			Utah	2 1
			Vermont	2 None
			Virginia	10 None
			Washington	5 2
			West Virginia	6 1
			Wisconsin	11 None
			Wyoming	1 None
			Totals	433 42

CONGRESSIONAL REAPPORTIONMENT. The census of 1910 made it necessary to provide for a reapportionment for representatives to Congress, and a bill providing for this was passed in the House on April 27.

This provides for 433 members, excluding Arizona and New Mexico, which together will be entitled to three members on the basis of the present population. The ratio of population for representatives is fixed at 211,887, an increase of 17,695 over the ratio previously in force. Under the new apportionment one member each will be gained by the States of Alabama, Colorado, Florida, Georgia, Idaho, Louisiana, Michigan, Minnesota, Montana, North Dakota, Ohio, Oregon, Rhode Island, South Dakota, Utah, and West Virginia. The States of Illinois, Massachusetts, New Jersey, Texas, and Washington each gained two seats. Oklahoma gains three members, Pennsylvania four, and New York six. Under the method embodied in the bill the total membership of the House is reached by dividing the total population of the State by the ratio (211,877) and assigning to each State one representative for each full ratio of population and one in addition for each major fraction thereof. For the representatives of each State according to the new apportionment, see table below.

Under the new apportionment law the 433 members of the House in the Sixty-third Congress will be apportioned among the States as follows:

	No.	Gain
Alabama	10	1
Arkansas	7	None
California	11	3
Colorado	4	1
Connecticut	5	None
Delaware	1	None
Florida	4	1
Georgia	12	1
Idaho	2	1
Illinois	27	2
Indiana	13	None
Iowa	11	None
Kansas	8	None
Kentucky	11	None
Louisiana	8	1
Maine	4	None
Maryland	6	None

SECOND SESSION. The first regular (or second actual) session of the Sixty-second Congress convened on December 4. There were few changes in the personnel of the Senate and the House. In the Senate appeared a new senator from Maine, Obadiah Gardner (q. v.). The failure to choose a senator from Colorado left the total number of members of the Senate 91, of whom 49 were Republicans and 42 Democrats. In the House there were 390 members, of whom 227 were Democrats, 162 Republicans, and 1 Socialist. There was one vacancy in the House membership.

The period between the winter session of Congress and the Christmas holidays is usually filled with routine business of little importance. In the Sixty-second Congress, however, there was an abundance of important business transacted before Congress adjourned for the holidays. A pension bill was passed by the House and steps were taken which led to the abrogation of the treaty of 1832 between Russia and the United States (see *Foreign Relations*), and other important matters were either transacted or set on foot.

Following his custom, the President's message to Congress at the opening of the session was devoted to a single subject. This was accompanied by the announcement that other subjects concerning which he wished to communicate his recommendations to Congress would be treated in other messages to appear from time to time. The first message was devoted to the subject of trusts and was entitled "Message of the President of the United States on the Anti-Trust Statute." It was a careful analysis of the judicial decisions and judicial interpretations of the Sherman law, dwelling at the greatest length on the legal aspect of the question. Beginning at the opinion of the Supreme Court on the Standard Oil and Tobacco cases, he pointed out the distinction between reading the word "reasonable" into the Anti-Trust law so as to make it permit reasonable restraint of trade and applying the law to specific cases in a reasonable way. The latter, he said, is what the court did. It simply exercised reason in determining what constituted restraint of trade. The President declared that

the courts had constantly done this in applying the common law against monopoly. He pointed out that the anti-trust statute as it stands today is a matter of growth; that, while it was not fully understood, juries were unwilling to convict men criminally under it, and judges were unwilling to pronounce sentence. Now that it is more fully understood and men that violate it are more likely to do so knowingly and deliberately, juries will be more ready to apply punishment. He expressed satisfaction at the outcome of the cases, particularly in the case of the Tobacco trust. He apparently believed it desirable to restore competition and that the decree in this case would restore competition. On this point he spoke as follows: "If we shall have by this decree defeated these purposes and restored competition between the large units into which capital and plant have been divided we shall have accomplished the useful purpose of this statute. . . . I venture to say that not in the history of American law has a decree more effective for such a purpose been entered by a court than that against the Tobacco trust." He declared that those who spoke of this disintegration of the trust as a mere change of garments have not given consideration to the inevitable working of the decree and understand little of the personal danger in attempting to evade or set at naught the solemn injunction of a court. From this decree he drew the conclusion that the statute is now clear and that under it trusts can be reorganized without disturbing business. He declared that the statute does not prohibit mere bigness or even merely the elimination of competition. What it does prohibit, he said, is a combination that is made for the purpose of eliminating particular competition in order to control prices and create a monopoly.

In regard to new trust legislation, the President suggested first, the enactment of a law which will describe and denounce unfair methods. These, he said, should be described so particularly that the government could prosecute single acts rather than general conspiracies, and so that the business world could know in advance what it should not do. He suggested, in addition, federal incorporation under the control of an executive bureau or commission. These recommendations he submitted with several new ones. He pointed out that in the Tobacco case the court had the advantage of an expert from the Bureau of Corporations in framing its decree, and he declared that the courts are not provided with suitable administrative machinery for the necessary inquiries preparatory to reorganization and that they should therefore be empowered to invoke the aid of the Bureau of Corporations. He urged still further that corporations which have been incorporated with federal charters shall be subjected to rigid supervision by this executive bureau or commission to which in times of doubt they may well submit their proposed plans for future business. He recommended that this supervision extend to the issue of stocks and bonds and include effective publicity. In the President's opinion federal incorporation should be voluntary. It would not secure immunity from prosecution, but it would offer such publicity and such opportunity for consultation between the corporation and the commission in charge that it would provide as great security against successful prosecutions as would be prac-

ticable or wise. It would give legitimate protection to those corporations that wish to keep within the law and it would place corporations which fail to apply for a federal charter under the suspicion of being unwilling to be supervised.

On December 5 Senator Poindexter of Washington introduced a bill abolishing the federal Court of Commerce. Following the action of this court in enjoining the Interstate Commerce Commission from enforcing its long- and short-haul order, the commercial bodies of southwestern States, which were especially affected, demanded the abolition of the court. See RAILWAYS.

On December 9 the report of the four Democratic members of the House committee on expenditures in the Interior Department, which had been investigating the Controller Bay land controversy, was made to the House. The report in all important essentials exonerated the administration from any blame in the matter. The report was severely criticised for its failure expressly to free the President from blame in the famous letter alleged to have been written by Richard Ryan to Secretary Ballinger (see ALASKA).

On December 12 the Sherwood Pension Service bill, the so-called "Dollar a Day bill," was passed by the House by a vote of 229 to 92. It was estimated that this bill, if it became a law, would add about \$75,000,000 a year to the annual expenses of the government. By the terms of this bill for service of ninety days up to six months, \$15 a month was to be paid; from six to nine months, \$20 a month; from nine months to a year, \$25 a month; and for one year or more, \$30 a month. Several attempts were made to amend the bill, but only two changes of importance were made. One of these eliminated the provision that any veteran receiving \$25 a month under the measure should be ineligible for admission to the Soldiers' Home, and the other struck out the paragraph restricting the benefits of the pension to veterans whose annual net income is less than \$1000 a year.

On December 20 the President sent to Congress a message dealing with tariff reform, together with a summary of the report of the tariff board. A discussion of this message and report will be found in the article TARIFF. He also sent a special message in which he approved the main features of the report of the National Monetary Commission (see FINANCIAL REVIEW). In this message he pointed out the satisfactory fiscal condition of the government, renewed his recommendation of legislation fixing tolls and the government of the Canal Zone, urged a more systematic method of appropriation for the improvement of the Mississippi and its tributaries, urged legislation to prevent delay and unnecessary expenses in litigation in the federal courts, called for the creation of a rural parcels post for parcels of not more than eleven pounds, and urged that all local officers, such as collectors of internal revenue, customs officers, postmasters, immigration commissioners, and marshals should be transferred to the classified service and taken out of politics. He declared that the postal savings banks had been a success and that their depositors numbered about 150,000, representing forty nations. He recommended the construction of two battleships a year until the Panama Canal is completed in

July, 1913. He also favored an immediate increase of 2000 men in the enlisted strength of the army and the abolition of the smaller navy see *Foreign Relations*.

CONGRESSIONAL REPRESENTATION. The State representation in the Senate and House in the Sixty-second Congress in 1911 is shown in the following table:

[Republicans in roman; Democrats in *italic*; Socialist in SMALL CAPS.]

ALABAMA.		
SENATORS.		
<i>John H. Bankhead.*</i>		<i>Joseph F. Johnston.†</i>
REPRESENTATIVES.		
[Democrats, 9.]		
<i>George W. Taylor.</i>	<i>Fred L. Blackmon.</i>	<i>John L. Burnett.</i>
<i>Stanley H. Dent, jr.</i>	<i>J. Thomas Heflin.</i>	<i>William Richardson.</i>
<i>Henry D. Clayton.</i>	<i>Richmond P. Hobson.</i>	<i>Oscar W. Underwood.</i>
ARKANSAS.		
SENATORS.		
<i>James P. Clarke.†</i>		<i>Jeff Davis.*</i>
REPRESENTATIVES.		
[Democrats, 7.]		
<i>Robert B. Macon.</i>	<i>Ben Cravens.</i>	<i>Joseph T. Robinson.</i>
<i>William A. Oldfield.</i>	<i>H. M. Jacoway.</i>	<i>W. S. Goodwin.</i>
<i>John C. Floyd.</i>		
CALIFORNIA.		
SENATORS.		
<i>George C. Perkins.†</i>		<i>John D. Works.†</i>
REPRESENTATIVES.		
[Republicans, 7; Democrat, 1.]		
<i>John E. Baker.</i>	<i>Julius Kahn.</i>	<i>William D. Stephens.</i>
<i>William Kent.</i>	<i>Everis A. Hayes.</i>	<i>Sylvester C. Smith.</i>
<i>Joseph R. Knowland.</i>	<i>James C. Needham.</i>	
COLORADO.		
SENATORS.		
<i>Simon Guggenheim.*</i>		
REPRESENTATIVES.		
[Democrats, 3.]		
<i>Atterson W. Rucker.</i>	<i>At large—Edward T. Taylor.</i>	<i>John A. Martin.</i>
CONNECTICUT.		
SENATORS.		
<i>Frank B. Brandegee.†</i>		<i>George P. McLean.†</i>
REPRESENTATIVES.		
[Republicans, 4; Democrat, 1.]		
<i>E. Stevens Henry.</i>	<i>At large—John Q. Tilton.</i>	<i>Ebenezer J. Hill.</i>
<i>Thomas L. Reilly.</i>	<i>Edwin W. Higgins.</i>	
DELAWARE.		
SENATORS.		
<i>Henry A. du Pont.†</i>		<i>Harry A. Richardson.*</i>
REPRESENTATIVE.		
At large—William H. Heald.		
FLORIDA.		
SENATORS.		
<i>Duncan U. Fletcher.†</i>		<i>Nathan P. Bryan.†</i>
REPRESENTATIVES.		
[Democrats, 3.]		
<i>Stephen M. Sparkman.</i>	<i>Frank Clark.</i>	<i>Dannitte H. Mays.</i>
GEORGIA.		
SENATORS.		
<i>Augustus O. Bacon.*</i>		<i>Hoke Smith.†</i>
REPRESENTATIVES.		
[Democrats, 11.]		
<i>Charles G. Edwards.</i>	<i>William S. Howard.</i>	<i>Thomas M. Bell.</i>
<i>Seaborn Anderson Roddenbery.</i>	<i>Charles L. Bartlett.</i>	<i>Thomas W. Hardwick.</i>
<i>Dudley M. Hughes.</i>	<i>Gordon Lee.</i>	<i>William G. Brantley.</i>
<i>William C. Adamson.</i>	<i>Samuel J. Tribble.</i>	
IDAHO.		
SENATORS.		
<i>Weldon B. Heyburn.†</i>		<i>William E. Borah.*</i>
REPRESENTATIVE.		
At large—Burton L. French.		
ILLINOIS.		
SENATORS.		
<i>Shelby M. Cullom.*</i>		<i>William Lorimer.†</i>

* 1913.

† 1915.

† 1917.

REPRESENTATIVES.

[Democrats, 11; Republicans, 14.]

Martin B. Madden.
James R. Mann.
William W. Wilson.
James T. McDermott.
Adolph J. Sabath.
Edmund J. Stack.
Frank Buchanan.
Thomas Gallagher.
Lynden Evans.

George E. Foss.
Ira C. Copley.
Charles E. Fuller.
John C. McKenzie.
James McKinney.
George W. Prince.
Claudius U. Stone.
John A. Sterling.
Joseph G. Cannon.

William B. McKinley.
Henry T. Rainey.
James M. Graham.
William A. Rodenberg.
Martin D. Foster.
H. Robert Fowler.
Napoleon B. Thistlewood.

INDIANA.

SENATORS.

Benjamin F. Shively.†

REPRESENTATIVES.

[Democrats, 12; Republican, 1.]

John W. Boehne.
William A. Cullop.
William E. Cox.
Lincoln Dixon.
Ralph W. Moss.

Finley H. Gray.
Charles A. Korbly.
John A. M. Adair.
Martin A. Morrison.
Edgar D. Crumpacker.

John W. Kern.‡

George W. Rauch.
Cyrus Cline.
Henry A. Barnhart.

IOWA.

SENATORS.

Albert B. Cummins.†

REPRESENTATIVES.

[Democrat, 1; Republicans, 10.]

Charles A. Kennedy.
I. S. Pepper.
Charles E. Pickett.
Gilbert N. Haugen.

James W. Good.
N. E. Kendall.
S. F. Prouty.
Horace M. Townner.

William S. Kenyon.*

William R. Green.
Frank P. Woods.
Elbert H. Hubbard.

KANSAS.

SENATORS.

Charles Curtis.*

REPRESENTATIVES.

[Republicans, 6; Democrat, 1; vacancy, 1.]

Daniel R. Anthony, jr.
Joseph A. Taggart.
Philip P. Campbell.

Fred S. Jackson.
Rollin R. Rees.
I. D. Young.

Joseph L. Bristow.†

Victor Murdock.

KENTUCKY.

SENATORS.

Thomas H. Paynter.*

REPRESENTATIVES.

[Democrats, 9; Republicans, 2.]

Ollie M. James.
Augustus O. Stanley.
Robert Y. Thomas, jr.
Ben Johnson.

Swagar Sherley.
Arthur B. Rouse.
J. Campbell Cantrill.
Harvey Helm.

William O. Bradley.†

W. J. Fields.
John W. Langley.
Caleb Powers.

LOUISIANA.

SENATORS.

Murphy J. Foster.*

REPRESENTATIVES.

[Democrats, 7.]

Albert Estopinal.
H. Garland Dupre.
Robert F. Broussard.

John T. Watkins.
Joseph E. Ransdell.

John R. Thornton.†

Robert C. Wickliffe.
Arsène P. Pujo.

MAINE.

SENATORS.

Charles F. Johnson.‡

REPRESENTATIVES.

[Republicans, 2; Democrats, 2.]

Asher C. Hinds.
Daniel J. McGillicuddy.

Samuel W. Gould.

Obadiah Gardner.*

Frank E. Guernsey.

MARYLAND.

SENATORS.

Isidor Rayner.‡

REPRESENTATIVES.

[Democrats, 5; Republican, 1.]

J. Harry Covington.
J. Fred C. Talbott.

George Konig.
J. Charles Linthicum.

John Walter Smith.†

Thomas Parran.
David J. Lewis.

MASSACHUSETTS.

SENATORS.

Henry Cabot Lodge.‡

REPRESENTATIVES.

[Democrats, 4; Republicans, 10.]

George P. Lawrence.
Frederick H. Gillett.
John A. Thayer.
William H. Wilder.
Butler Ames.

Augustus P. Gardner.
Ernest W. Roberts.
Samuel W. McCall.
William F. Murray.
James M. Curley.

W. Murray Crane.*

Andrew J. Peters.
John W. Weeks.
William S. Greene.
Robert O. Harris.

* 1913.

† 1915.

‡ 1917.

MICHIGAN.

SENATORS.

William Alden Smith.*

Charles E. Townsend‡

REPRESENTATIVES.

[Republicans, 10; Democrats, 2.]

Frank E. Doremus.
William W. Wedemeyer.
J. M. C. Smith.
Edward L. Hamilton.

Edwin F. Sweet.
Samuel W. Smith.
Henry McMorran.
Joseph W. Fordney.

Jas. C. McLaughlin.
George A. Loud.
Francis H. Dodds.
H. Olin Young.

MINNESOTA.

SENATORS.

Knute Nelson.*

Moses E. Clapp.†

REPRESENTATIVES.

[Democrat, 1; Republicans, 8.]

Sydney Anderson.
Winfield S. Hammond.
Charles R. Davis.

Frederick C. Stevens.
Frank M. Nye.
Charles A. Lindbergh.

Andrew J. Volstead.
Clarence B. Miller.
Halvor Steenerson.

MISSISSIPPI.

SENATORS.

Le Roy Percy.*

John Sharp Williams.‡

REPRESENTATIVES.

[Democrats, 8.]

Ezekiel S. Candler, jr.
Hubert D. Stephens.
Benjamin G. Humphreys.

Thomas U. Sisson.
S. A. Witherspoon.
B. P. Harrison.

William A. Dickson.
James W. Collier.

MISSOURI.

SENATORS.

William J. Stone.†

James A. Reed.‡

REPRESENTATIVES.

[Democrats, 13; Republicans, 3.]

James T. Lloyd.
William W. Rucker.
Joshua W. Alexander.
Charles F. Booher.
William P. Borland.
Clement C. Dickinson.

Courtney W. Hamlin.
Dorsey W. Shackelford.
Champ Clark.
Richard Bartholdt.
Theron E. Catlin.
L. C. Dyer.

Walter L. Hensley.
Joseph J. Russell.
James A. Daugherty.
Thomas L. Rubey.

MONTANA.

SENATORS.

Joseph M. Dixon.*

Henry L. Myers.‡

REPRESENTATIVE.

At large—Charles N. Pray.

NEBRASKA.

SENATORS.

Norris Brown.*

Gilbert M. Hitchcock.‡

REPRESENTATIVES.

[Democrats, 3; Republicans, 3.]

John A. Maguire.
C. O. Lobeck.

Daniel V. Stephens.
Charles H. Sloan.

George W. Norris.
Moses P. Kinkaid.

NEVADA.

SENATORS.

Francis G. Newlands.†

George S. Nixon.‡

REPRESENTATIVE.

At large—E. E. Roberts.

NEW HAMPSHIRE.

SENATORS.

Jacob H. Gallinger.†

Henry E. Burnham.*

REPRESENTATIVES.

[Republicans, 2.]

Cyrus A. Sulloway.

Frank D. Currier.

NEW JERSEY.

SENATORS.

Frank O. Briggs.*

James E. Martins.‡

REPRESENTATIVES.

[Democrats, 7; Republicans, 3.]

William J. Browning.
John J. Gardner.
Thomas J. Scully.
Ira W. Wood.

William E. Tuttle, jr.
William Hughes.
Edward W. Townsend.

Walter I. McCoy.
Eugene F. Kinkaid.
James A. Hamill.

NEW YORK.

SENATORS.

Elihu Root.†

James A. O'Gorman.‡

REPRESENTATIVES.

[Democrats, 22; Republicans, 14; Progressive Republican, 1.]

Martin W. Littleton.
George H. Lindsay.
James P. Maher.
Frank E. Wilson.
William C. Redfield.
William M. Calder.
John J. Fitzgerald.
Daniel J. Riordan.
Henry M. Goldfogle.
William Sulzer.
Charles V. Fornes.
Michael F. Conry.
Jefferson M. Levy.

John J. Kindred.
Thomas G. Patten.
Francis B. Harrison.
Henry George, jr.
Steven B. Ayres.
John E. Andrus.
Thomas W. Bradley.
Richard E. Connell.
William H. Draper.
Henry S. De Forest.
George W. Fairchild.

George R. Malby.
Charles A. Talcott.
Luther W. Mott.
Michael E. Driscoll.
John W. Dwight.
Serenio E. Payne.
Henry G. Danforth.
Edwin S. Underhill.
James S. Simmons.
Daniel A. Driscoll.
Charles B. Smith.
Edward B. Vreeland.

THERON AKIN.

* 1913.

† 1915.

‡ 1917.

NORTH CAROLINA.

SENATORS.

*P. M. Simmons.***Lee S. Overman.†*REPRESENTATIVES.
[Democrats, 10.]*John H. Small.
Claude Kutchin.
John M. Faison.
Edward W. Pow.**Charles M. Stedman.
Hannibal L. Godwin.
Robert N. Page.**Robert L. Doughton.
Edwin Y. Webb.
James M. Gudger, jr.*

NORTH DAKOTA.

SENATORS.

*Porter J. McCumber.‡**Asle J. Gronna.†*REPRESENTATIVES.
[Republicans, 2.]At large—*Louis B. Hanna; H. T. Helgesen.*

OHIO.

SENATORS.

*Theodore E. Burton.†**Atlee Pomerene.‡*REPRESENTATIVES.
[Democrats, 16; Republicans, 5.]*Nicholas Longworth.
Alfred G. Allen.
James M. Cox.
J. H. Goetze.
Timothy T. Ansberry.
Matthew R. Denver.
J. D. Post.**Frank B. Willis.
Isaac R. Sherwood.
Robert M. Switzer.
Horatio C. Claypool.
Edward L. Taylor, jr.
Carl C. Anderson.
William G. Sharp.**George White.
W. B. Francis.
William A. Ashbrook.
John J. Whitacre.
E. R. Bathrick.
Paul Howland.
Robert J. Bulkley.*

OKLAHOMA.

SENATORS.

*Thomas P. Gore.†**Robert L. Owen.**REPRESENTATIVES.
[Democrats, 3; Republicans, 2.]*Bird McGuire.
Dick T. Morgan.**James S. Davenport.
Charles D. Carter.**Scott Ferris.*

OREGON.

SENATORS.

*Jonathan Bourne, jr.***George E. Chamberlain.‡*REPRESENTATIVES.
[Republicans, 2.]*Willis C. Hawley.**A. W. Jafferty.*

PENNSYLVANIA.

SENATORS.

*Boies Penrose.**George T. Oliver.*REPRESENTATIVES.
[Democrats, 8; Republicans, 24.]*Henry H. Bingham.
William S. Reyburn.
J. Hampton Moore.
Reuben O. Moon.
Michael Donohoe.
George D. McCreary.
Thomas S. Butler.
Robert E. Diefenderfer.
William W. Griest.
John R. Farr.
Charles C. Bowman.**Robert E. Lee.
John H. Rothermel.
W. D. B. Ainey.
William B. Wilson.
John G. McHenry.
Benjamin K. Focht.
Marlin E. Olmsted.
Jesse L. Hartman.
Daniel F. Lafean.
Charles E. Patton.
Curtis H. Gregg.**Thomas S. Crago.
Charles Matthews.
Arthur L. Bates.
A. Mitchell Palmer.
Jonathan N. Langham.
Peter M. Speer.
Stephen G. Porter.
John Dalzell.
James Francis Burke.
Andrew J. Barchfeld.*

RHODE ISLAND.

SENATORS.

*George P. Wetmore.***Henry F. Lippitt.‡*REPRESENTATIVES.
[Republican, 1; Democrat, 1.]*George F. O'Shaunessy.**George H. Utter.*

SOUTH CAROLINA.

SENATORS.

*Benjamin R. Tillman.***Ellison D. Smith.†*REPRESENTATIVES.
[Democrats, 7.]*George S. Legare.
James F. Byrnes.
Wyatt Aiken.**Joseph T. Johnson.
David E. Finley.**J. Edwin Ellerbe.
Asbury F. Lever.*

SOUTH DAKOTA.

SENATORS.

*Robert J. Gamble.***Coe I. Crawford.†*REPRESENTATIVES.
[Republicans, 2.]At large—*Charles H. Burke, Eben W. Martin.*

TENNESSEE.

SENATORS.

*Robert L. Taylor.***Luke Lea.‡*

* 1913.

† 1915.

‡ 1917.

REPRESENTATIVES.
[Democrats, 8; Republicans, 2.]
William C. Houston.
Joseph W. Byrns.
Lemuel P. Padgett.

Sam R. Sells.
Richard W. Austin.
John A. Moon.
Cordell Hull.

Thetus W. Sims.
Finis J. Garrett.
Kenneth D. McKellar.

TEXAS.

SENATORS.

Charles A. Culberson.‡

*Joseph W. Bailey.**

REPRESENTATIVES.
[Democrats, 16.]

Morris Sheppard.
Martin Dies.
James Young.
Choice B. Randall.
Jack Beall.
Rufus Hardy.

A. W. Gregg.
John M. Moore.
George F. Burgess.
Albert S. Burleson.
Robert L. Henry.

Oscar Callaway.
John H. Stephens.
James L. Slayden.
John N. Garner.
William R. Smith.

UTAH.

SENATORS.

Reed Smoot.†

George Sutherland.‡

REPRESENTATIVE.
At large—*Joseph Howell.*

VERMONT.

SENATORS.

William P. Dillingham.†

Carroll S. Page.‡

REPRESENTATIVES.
[Republicans, 2.]

David J. Foster.

Frank Plumley.

VIRGINIA.

SENATORS.

*Thomas S. Martin.**

Claude A. Swanson.‡

REPRESENTATIVES.
[Democrats, 9; Republican, 1.]
Edward W. Saunders.
Carter Glass.
James Hay.

William A. Jones.
E. E. Holland.
John Lamb.
Robert Turnbull.

Charles C. Carlin.
C. Bascom Slemp.
Henry D. Flood.

WASHINGTON.

SENATORS.

Wesley L. Jones.†

Miles Poindexter.‡

REPRESENTATIVES.
[Republicans, 3.]

William E. Humphrey.

Stanton Warburton.

William L. La Follette.

WEST VIRGINIA.

SENATORS.

*Clarence W. Watson.**

William E. Chilton.‡

REPRESENTATIVES.
[Democrats, 4; Republican, 1.]
Adam B. Littlepage.
John M. Hamilton.

John W. Davis.
William G. Brown, jr.

James A. Hughes.

WISCONSIN.

SENATORS.

Robert M. La Follette.‡

Isaac Stephenson.†

REPRESENTATIVES.
[Democrats, 2; Republicans, 8; Socialist, 1.]

Henry A. Cooper.
John M. Nelson.
Arthur W. Kopp.
William J. Cary.

Victor L. Berger.
Michael E. Burke.
John J. Esch.
James H. Davidson.

Thomas F. Konop.
Elmer A. Morse.
Irvine L. Lenroot.

WYOMING.

SENATORS.

Francis E. Warren.*

Clarence D. Clark.‡

REPRESENTATIVE.
At large—*Frank W. Mondell.*

DELEGATES FROM TERRITORIES.

ALASKA.

James Wickersham.

ARIZONA.

Ralph H. Cameron.

HAWAII.

J. Kuhio Kalaniana'ole.

NEW MEXICO.

William H. Andrews.

* 1913.

† 1915.

‡ 1917.

RESIDENT COMMISSIONERS.

PHILIPPINE ISLANDS.

Benito Legarda.

Manuel L. Quezon.

PORTO RICO.

Luis M. Rivera.

CLASSIFICATION.

Senate:		House of Representatives:	
Republicans	50	Democrats	229
Democrats	41	Republicans	159
Vacancy	1	Progressive Republican	1
		Socialist	1
Total	92	Vacancy	1
		Total	391

* 1913.

† 1915.

‡ 1917.

ADMINISTRATION

The administration of President Taft in 1911 is described in the articles in the *YEAR BOOK* dealing with matters relating to political and economic questions, such as *TRUSTS*; *FINANCIAL REVIEW*; *ARBITRATION, INTERNATIONAL*; and in the preceding sections of the present article dealing with Congress and with the work of the different departments of the government. The following notes are intended to cover such events worthy of mention as are not properly treated elsewhere.

On March 7 Richard A. Ballinger resigned as Secretary of the Interior and his resignation was accepted by President Taft. In a letter written to Mr. Ballinger accepting his resignation, President Taft declared that the latter had been the "object of one of the most unscrupulous conspiracies for the defamation of character that history can show," and that the impressions of him as a man and a public officer were the "result of a malicious and unprincipled plan for the use of the press" to misrepresent him. The President continued, "With the hypocritical pretense that they did not accuse you of corruption in order to avoid the necessity that even the worst criminal is entitled to—to wit, that of a definitely formulated charge of some misconduct, they showered you with suspicion, and by the most pettifogging methods exploited to the public matters which had no relevancy to an issue of either corruption or inefficiency in office, but which paraded before a hysterical body of headline readers, served to blacken your character and obscure the proper issue of your honesty and effectiveness as a public servant." From the exchange of correspondence between Mr. Ballinger and the President it appeared that the former had sent in his resignation at an earlier date, but had been urged to remain in office until after the close of Congress. Shortly after the resignation of Secretary Ballinger came the announcement of the appointment of Walter L. Fisher of Chicago as his successor. Mr. Fisher is one of the most prominent citizens of Chicago and has long been identified with the question of conservation.

In March Charles D. Norton, secretary to the President, resigned the office and was succeeded by Charles D. Hilles (q. v.). Mr. Norton resigned to become vice-president of one of the three largest banks in the country. His retirement was expected, as his tenure of the office was only to be temporary and to depend upon the accomplishment of certain specific reforms.

These included the reorganization of the work devolving upon the secretary to the President and the creation of a permanent staff. In order to bring about the latter plan it was necessary to increase the salaries. The new staff is headed by an executive clerk, who has the assistance of a chief clerk and an appointment clerk. A proposal to increase the salary of the secretary to the President from \$8000 to \$10,000 passed the Senate, but in conference with the House the increased salary was reduced from \$10,000 to \$7500.

In the early part of June President Taft delivered two important addresses on the subject of reciprocity with Canada. The first of these was before the Western Economic Society in Chicago, and the second before the Interstate Cottonseed Crushers' Association of New York City. In these addresses the President defined the attitude of the administration in regard to certain amendments to the bill proposed in the Senate. One of these amendments was that proposed by Senator Root, which provided that not until each Canadian province shall have removed all the restrictions upon the exportation of wood from which paper is manufactured shall the United States permit paper from Canada to come in free. Mr. Taft, while admitting that this amendment did not change the character of the bill, declared that the measure should be passed without amendment.

Senator Cummins of Iowa early in September issued a statement containing criticisms of President Taft's administration. This statement, following similar utterances of other insurgent Republican senators, was taken generally as a view of a considerable number of Progressives. Senator Cummins declared that the President had associated himself with reactionaries, or at least not with the Progressives in casting his influence for the Payne-Aldrich bill and commending it as the best bill hitherto passed. He had taken a similar stand in presenting to Congress through the Attorney-General the original draft of the Interstate Commerce bill which, in Senator Cummins's opinion, would have swept away the work of nearly twenty-five years if it had not been amended on the floor of the Senate. He declared that President Taft had used his influence to secure the deposit of postal savings in large city banks rather than in the small country banks, and that his action in substituting a corporation tax for an income tax was not in harmony with the ideas of the Progressives. He asserted that the President had failed to secure a real advance

in international arbitration and that he had erred in vetoing the woolen and free list tariff bills, and the resolution admitting New Mexico and Arizona. Senator Cummins denounced the reciprocity agreement as "false pretense from beginning to end."

On September 15 President Taft started on a tour of the country lasting until November 1. He traversed the whole northern half of the United States from ocean to ocean, including many States in the Middle West. The first speech on this tour was made at Syracuse, N. Y. At Detroit, Mich., he made the first of his prepared speeches, taking for his subject the trust problem. A large part of his speech was devoted to an interpretation or explanation of the decision of the United States Supreme Court in the Tobacco trust case and the effect of the anti-trust law in the light of this decision. In passing the Sherman act, the President said the legislators had hoped to restrain certain evils and relied upon Congress through their construction to prevent the application of the law from becoming so wide as to be impracticable. He declared that the early decisions of the law could not be said to be fortunate. He affirmed that the period of uncertainty in regard to the meaning of the law was passed since the decisions of the Supreme Court in the Standard Oil and Tobacco cases. He pointed out the mistake of those who say that the Supreme Court read the word "reasonable" into the law so as to make it permit reasonable restraints of trade. This, said the President, would imply that the court believed there was monopoly in restraint of trade that could be regarded as reasonable. He declared that this was exactly what the court did not do, and explained the distinction in practical effect, as well as in theory, between the attempt to confine the operation of the act to unreasonable restraint or unreasonable monopoly, and an attempt to read and understand the law in the light of reason. His conclusion was that the Sherman Anti-Trust law needs no amendment, because it has now proved to be effective in preventing a monopoly. "We did get along with competition," said the President; "we can get along with it. We did get along without monopoly; we can get along without it; and the business men of this country must square themselves to that necessity. Either that or we must proceed to State socialism and vest the government with power to run every business." In this speech he urged the subject of federal incorporation, with supervision under an executive bureau of the government. In other speeches in Michigan the President repeated his explanation of the veto of the tariff bills, resting his case chiefly on the fact that intelligent legislation on the tariff must wait on the tariff board. He also defended the arbitration treaties, urged the extension of the civil service law, and treated various other subjects.

In the speech delivered at Waterloo, Ia., President Taft defined the attitude of his administration in regard to the prosecution of illegal trusts. He declared that the managers of great enterprises can expect no cessation of prosecution for the violation of the anti-trust law. He affirmed his belief that business men will make their affairs conform to the law and urged an end to the indiscriminate attacks on business enterprises. He said it was not a progressive policy to be hostile to the prosperity of any part of the country and he made an appeal

to citizens to unite to promote business prosperity by putting down these attacks which, he said, were engendered not by a real desire to eliminate abuses, but by a wish to arouse unjust prejudices. He expressed his conviction that effective control of the railways had been secured; that the Sherman law had been so defined by the courts that the business community could know where it stands, and he affirmed that the court had declined to hold that competition is impossible under modern business conditions, but it insists that it must be given full opportunity for operation, and that any combined effort affecting inter-State trade, looking to its suppression, is contrary to law. He declared further that the foundation has been laid for an intelligent revision of the tariff by the work of the tariff board and that the way to sound financial legislation had been opened by the deliberations of the national monetary committee.

The President reached Denver during the Public Lands convention that was being held in that city. Delegates to this convention were, for the most part, hostile to the policy of conservation. Before the President's arrival they had adopted a resolution condemning the idea that the government, as trustee for the whole people, should own natural resources and lease them to usurers. President Taft addressed this convention and declared emphatically his belief in the leasing system. He told his audience that in opposing this system he believed they were wrong. He also reiterated what he had said at other times that he would like to see provision made for the appeal of land cases from the decision of the Interior Department to the courts; and that he would be willing that the control of the water power sites should be handed over by the federal government to the States, with certain restrictions as to the disposal of the rights of such water powers.

In the latter part of November an authorized interview was given by President Taft to Mr. Francis E. Leupp and was published in the *Outlook*. In this interview the President made what may be considered a defense of his administration. He frankly admitted that he had made mistakes, especially on the occasion of the delivery of his speech on the tariff at Winona, Minn. This was the famous speech in which he declared that the Payne-Aldrich tariff was the best tariff bill ever passed by Congress. This speech he said was dictated on the cars between two stations and was given to the press before he had sufficiently revised it. Nevertheless, the President declared that the tariff bill in effect did reduce the tariff. He pointed out that he induced Senator Aldrich to cut down the cotton schedule 10 per cent., and that by his efforts hides were placed on the free list and lower duties were secured on coal, iron ore, and scrap iron. He admitted that he should have made a stronger point for the reduction of tariff on paper as he did in the case of hides. His failure to secure a lower duty on lumber he attributed largely to the influence of Gifford Pinchot who, he declared, threw his influence into the scale for the retention of the \$2 duty on lumber instead of backing a general effort to put it on the free list. As for the future programme of the administration, the President declared his belief on principle in a general income tax, and said that he would not resort to the ordinary income tax except in an emergency like war, when he would have it graduate so that the

citizens who had most at stake would bear a correspondingly large share of the burden. He indicated his belief that reductions in the woolen and cotton schedules and possibly in the metal schedules of the tariff would be the first work of the Sixty-second Congress. These reductions as far as his recommendations were concerned would, he said, be based on the report of the tariff board. He declared it of the first importance to obtain legislation which would enable Alaska to develop without infringing upon the broad policies of conservation. Other important measures which he mentioned were the question of ratifying the peace treaties with England and France, and the fiscal treaties with Honduras and Nicaragua. In regard to his second term, the President said that while he would welcome nomination and election for another term as President, he was not willing and had not been willing to "purchase it at the sacrifice of his freedom to do his duty as he sees it"; rather than that he would retire to private life.

NOVEMBER ELECTIONS

This summary of the elections held on November 7 is general in its nature. More detailed accounts of the elections held in the various States will be found in the political sections under those States.

From a national standpoint the elections were of importance as indicating the trend in political affairs. There were no candidates for federal office, and in many States there were no elections of State officials or legislatures. There were, however, many important municipal elections which attracted more than local attention and interest.

In Massachusetts, Rhode Island, and Kentucky certain prominence was given to the tariff issues, but in nearly all the other States local questions overshadowed national. In Massachusetts Governor Foss was reelected, defeating Frothingham, the Republican candidate. Mr. Foss's plurality was reduced somewhat, but this loss is attributed to criticism of his course in office. For the second time since the Civil War Maryland elected a Republican governor. The legislature, however, remained Democratic. The elections in Ohio were perhaps the most interesting and came nearest to being identified with national issues, chiefly for the reason that Mr. Cox, Republican leader in Cincinnati, had the practical indorsement of President Taft. He was defeated by Henry T. Hunt, Democrat. In 1905, in a speech at Akron, Mr. Taft, then Secretary of State, sharply denounced the Cox machine, calling it "a local despotism," and urging the citizens to vote against it. He was therefore sharply criticised for supporting a candidate whom he had denounced six years previously. The general drift of the voting in Ohio was Democratic or Socialistic. In eleven cities Socialist mayors were chosen (see OHIO).

In New York the elections were for members of the legislature and minor officers. As a result the Democratic legislature, elected in 1910, was succeeded by an assembly in which there will be 101 Republicans and 48 Democrats. This result was generally attributed to opposition to Charles F. Murphy, the leader of Tammany Hall, who was charged with having unduly influenced Governor Dix. In New York City the Democrats lost control of the board of aldermen

and elected county officers and judges by only a small majority.

The result in New Jersey was of unusual interest owing to the prominence of Governor Woodrow Wilson as a candidate for the presidential nomination. The legislature, which in 1910 was Democratic by a majority of 21, was succeeded by a Republican majority of 15. The change was due chiefly to the influence of Democrats who opposed the advanced views of Governor Wilson.

The result of the first State election in New Mexico was somewhat in the nature of a surprise. It was generally believed that the voters of the new State would indorse the administration, particularly as the Territory had been heretofore Republican and was admitted to statehood under Republican auspices. Through a coalition of Democrats and Progressive Republicans the Republican candidate for governor was defeated and the Republican plan of rendering the New Mexico constitution difficult of amendment was rejected (see NEW MEXICO).

The election in Kentucky resulted in the return of a State normally Democratic to its party, after four years under a Republican governor.

Municipal elections throughout the country showed an increasing spirit of independence in questions involving local administration. In Cleveland, Newton D. Baker, a former colleague of Mayor T. L. Johnson, was chosen mayor in Cincinnati. The Cox machine, as noted above, was overthrown. In San Francisco the labor union forces were driven from power. Salt Lake City, and Lowell and Lawrence in Massachusetts adopted the commission form of government. The city of Chelsea, Massachusetts, on the other hand, voted against the commission form of government after having given it a trial. The result in Philadelphia was perhaps more significant than in any other city. After years of rule by an alleged corrupt Republican ring, the voters elected to office an avowed reformer, Rudolph Blankenburg. The most important result of the voting was probably the remarkable gains made by the Socialist party. In Ohio, as mentioned above, 11 cities elected Socialist mayors. Four of the nineteen councilmen of Columbus are Socialist. In Schenectady, N. Y., a city with a population of 72,000, the Socialists elected their candidate, Rev. George R. Lunn. A majority of the councilmen and nearly all the other city officers are also Socialists. In Rhode Island a Socialist was elected to the legislature. Socialist mayors were chosen in Newcastle, Pa., Crookston, Minn., and in five smaller cities in Utah. In New York City it is estimated that the party growth of the Socialists was 42 per cent., 100 per cent. in Buffalo and Pittsburgh, and 600 per cent. in Bridgeport, Conn. It is probable that not all those who voted the Socialist ticket were Socialists. In some places men of one or the other of the old parties supported a Socialist candidate for the accomplishment of some political purpose. The increase in the Socialist vote was, however, none the less significant.

As an indication of the drift of politics in 1912 the election as a whole gave little light. The fortunes of no candidate for the presidential nomination were greatly promoted. In the main, the voters disregarded national politics and based their votes on local issues.

CAMPAIGN OF 1912

Preparations for the presidential campaign of 1912 had by the end of 1911 assumed considerable proportions. Only President Taft and Senator La Follette of Wisconsin had declared themselves to be in the field as Republican candidates. The attitude of Theodore Roosevelt on the question of renomination was much discussed, although Mr. Roosevelt had refused to commit himself. In relation to his possible position, the declaration made at the time of his election to the presidency on November 8, 1904, and reaffirmed in 1907, is of interest. This declaration was as follows: "On the 4th of March next I shall have served three and a half years, and this three and a half years constitutes my first term. The wise custom which limits the President to two terms regards the substance and not the form, and under no circumstances will I be a candidate or accept another nomination."

Of the Democratic candidates the most conspicuous at the end of the year was Governor Woodrow Wilson of New Jersey. He had openly declared himself a candidate and apparently had developed considerable support. Other candidates more or less conspicuous were Champ Clark, Speaker of the House of Representatives, Governor Harmon of Ohio, James W. Folk, former governor of Missouri, and Thomas R. Marshall, governor of Indiana.

For the support of Senator La Follette, an organization known as the National Progressive Republican League was organized early in 1911, under the leadership of Senator Bourne of Oregon, who was elected president. The organizers of the league included, in addition to nearly all the insurgent United States senators, Louis Brandeis, Ray Stannard Baker, Charles R. Crane, Francis J. Heney, Gifford Pinchot, William Allen White, and other advocates of progressive measures. While the organization did not positively pledge itself to the support of any candidate, it declared at a conference held later in the year that Senator La Follette was the logical candidate for President of the United States on account of his experience, character, courage, his record of constructive legislation and administrative ability. The reforms indorsed by the league included direct primaries, popular election of delegates to the national conventions, election of United States senators by the people, the referendum, initiative, and recall, and an effective corrupt practices act. Senator La Follette formally inaugurated his campaign for nomination by the delivery of two speeches in Ohio in December. One of these was on "Self-Government and the Trusts" and the other on "Courts and Labor Combinations under the Restriction of the Sherman Anti-Trust Law." His speechmaking tour included cities in Michigan, Indiana, and Illinois.

The Republican National Committee met in Washington on December 12 to choose the place of the Republican National Convention of 1912. It was decided that the convention should be held in Chicago on June 18. An attempt to have presidential primaries held in States in which such elections were authorized to be held was voted down by the committee, much to the disappointment of the progressive politicians who urged such action. A sensation of the meeting was the declaration by E. F. Lee, of the State committee of Indiana, to

the effect that Mr. Taft could not carry that State. This assertion was made in a formal statement issued at the close of the meeting. It was contradicted by Harry S. New, who was elected at the meeting as a committeeman from Indiana. Mr. Lee is a strong supporter of Mr. Beveridge of Indiana. Postmaster-General Hitchcock resigned as chairman of the national committee, and John A. Hill, former governor of Maine, who had been acting chairman since 1909, was elected chairman until the selection of Mr. Taft's campaign manager if the President is renominated.

FOREIGN RELATIONS

The foreign relations of the United States during 1911 concerned chiefly those countries in the immediate proximity. The attempt to bring about a reciprocity agreement with CANADA is described in detail in the article *TARIFF*, in the section *Congress in UNITED STATES*, and in the article *CANADA*. In addition to the reciprocity agreement the State Department announced on January 14 that a complete agreement had been reached with Canada over the fisheries question. The rebellion in Mexico, which resulted in the retirement of President Diaz and the succession of President Madero, brought about complications with the United States along the border between Texas and Mexico. The conditions in Mexico had for several months previous given alarm and the United States ambassador to Mexico had acquainted President Taft with the possibility of an outbreak. As a result of his knowledge of the conditions, the President ordered an army division of full strength to be mobilized at San Antonio, Tex., a brigade of three regiments at Galveston, a brigade of infantry in the Los Angeles district of southern California, and a squadron of battleships, cruisers, and transports at Galveston, and a small squadron of ships at San Diego. During the fighting at Juárez, just across the border from El Paso, Tex., the firing by Mexican troops caused the death of several American citizens and the injury of many others. Similar conditions existed at Douglas and Agua Prieta, Ariz. Several citizens were killed and many injured in these towns.

President Taft found it necessary in April to make representations to the Mexican government to the effect that affairs like those at Douglas and Agua Prieta must not be repeated. Formal warnings were at the same time issued to the federal and insurrecto commanders that they would be held to a strict observance of the neutrality law. The President asked for immediate assurances that there should be no more fighting that might endanger Americans in the border towns. Information was also requested as to what measures the federal authorities had already taken to prevent further combats of this kind. President Diaz on April 18 informed Ambassador Wilson that Mexico would observe "a distinct restrictive policy hereafter for the zone of hostilities along the international border." The official reply of the Mexican government to President Taft's note was received two days later. While it was friendly in form and substance, it laid at the door of American citizens much of the responsibility for the injuries complained of by the President. It was claimed that the insurrectos purposely took positions which forced the federal troops, in

attacking them, to fire into American territory, and it was also charged that Americans were not keeping away from the line of fire. As a result of this prompt action taken by the President care was taken by both insurgents and regular troops that there should be no further firing into American territory. Following the inauguration of President Madero a plot was unearthed against the government to begin a new insurrection and evidence was accumulated that Gen. Bernardo Reyes and others were perfecting plots at El Paso, Tex., to overturn the government. General Reyes and a number of officers and men were seized by United States authorities and handed over to Mexican officials.

On June 15 a decision was reached in the long-standing Chamizal boundary dispute between the United States and Mexico. On that date the International Arbitration Court, which had been sitting at El Paso for a month discussing the ownership of some 600 acres of land, involving \$7,000,000 of property, inhabited by 6000 people, rendered a decision. Mexico was represented by one arbitrator, the United States by one, and the third member was a Canadian jurist. The arbitrators gave part of the land to Mexico and part to the United States. The dispute originally arose out of a change in the course of the Rio Grande River seventeen years ago. The commissioners found, in substance, that up to a certain point, the lands on the El Paso side of the river grew by accretion, but that at another period there was a sudden "cut off" by the river of a considerable portion of Mexican territory. The decision was made that the lands gained by accretion belonged to America, while the lands suddenly cut off from Mexico belonged to the latter country. This decision was a compromise and both countries dissented. It seemed probable that the case would be reargued.

On April 26 President Diaz set free the Americans, Blatt, Converse, and Brown. These men had been for two months in a Mexican jail, charged with giving aid to the insurgents. They were released at the request of President Taft.

For the conventions signed between the United States and Nicaragua and Honduras, see above, *Treaties*.

The Alsop claim, a question long pending between the United States and Chile, was settled by King George of England acting as arbitrator in July. See CHILE, *History*.

Foreign relations with countries in Europe were friendly during the year and good feeling between the United States, France, and Great Britain was promoted by the effort to arrange arbitration treaties between these countries and the United States. Arrangement was made with Great Britain to settle all outstanding differences in addition to those already settled by treaties made in previous years, and on April 3 Great Britain and the United States agreed to arbitrate the Webster claim, involving the ownership of several millions of acres of land in New Zealand.

The agitation which has gone on for years against the action of Russia in forbidding within her territories American citizens of Jewish descent reached a culmination in December and resulted in the abrogation of the treaty of 1832 by President Taft. Although the question had been discussed for years and protests had been made by American representatives to Russia through succeeding secretaries of state, it has been impossible to obtain modification of the

Russian interpretation of the law that would allow Jewish citizens of the United States equal rights with others. In the early part of December a large and important meeting was held in New York City, which was addressed by prominent judges and others, nearly all of whom demanded that Russia should be punished by denouncing and annulling the treaty of 1832 on the ground that she had failed to live up to its engagements. Article I of this treaty reads as follows: "There shall be between the territories of the high contracting parties a reciprocal liberty of commerce and navigation. The inhabitants of their respective states shall mutually have liberty to enter the ports, places, and rivers of each party wherever foreign commerce is permitted. They shall be at liberty to sojourn and reside in all parts whatsoever of said territories in order to attend to their affairs, and they shall enjoy, to that effect, the same security and protection as natives of the country wherein they reside, on condition of their submitting to the laws and ordinances there, prevailing, and particularly to the regulations in force concerning commerce." The President in the message to Congress dealing with foreign relations stated that an attempt was being made to replace this treaty with a new one which would be more explicit. In the meantime, however, the resolution had been introduced into the House by Representative Sulzer of New York, providing for the abrogation of the treaty of 1832 with Russia because of discrimination by the Russian government against Hebrews of American citizenship and the honoring of American passports. This resolution was passed by a vote of 300 to 1. The resolution passed read as follows: "That the people of the United States assert as a fundamental principle that the rights of its citizens shall not be impaired at home or abroad because of race or religion; that the government of the United States concludes its treaties for the equal protection of all classes of its citizens without regard to race or religion; that the government of the United States will not be a party to any treaty which discriminates, or which by one of the parties thereto is so construed as to discriminate between American citizens on the ground of race or religion; that the government of Russia has violated the treaty of 1832, refusing to honor American passports duly issued to American citizens on account of race and religion; that in the judgment of Congress the said treaty for reasons aforesaid ought to be terminated at the earliest time; that for the aforesaid reasons the said treaty is hereby declared to be terminated and of no further force and effect from the expiration of one year after the date of notification of the government of Russia of the terms of this resolution and that to this end the President is hereby charged with the duty of communicating such notice to the government of Russia. The Russian government informed the State Department informally following the passage of this resolution that it was offensive to Russia. While the right of the United States to abrogate the existing treaty was not questioned, objection was taken to the wording of the resolution. An alleged inconsistency was pointed out in that the United States did not hesitate to exclude Orientals as "undesirables." The Senate committee on foreign relations refused to adopt the Sulzer resolution, but prepared instead a substitute, which was unanimously adopted by the Senate on

cember 19. Previous to this, however, on December 15, President Taft had already notified Russia of the intention of the United States to abrogate the treaty of 1832, and on December 17 this notice was served on the Russian government by the American ambassador. The resolution adopted by the Senate was practically a confirmation of the action of the President. On December 20 the House concurred in the Senate resolution without a dissenting vote. The revised resolution is as follows:

"Whereas, the treaty of commerce and navigation between the United States and Russia, concluded on the 18th day of December, 1832, provides in Article XII. thereof that it shall continue in force until the first day of January in the year of our Lord 1839 and if, one year before that date one of the high contracting parties shall not have announced to the other by an official notification its intention to arrest the operation thereof, this treaty shall remain obligatory one year beyond that date and so on until the expiration of the year which shall commence after the date of a similar notification, and

"Whereas, on the 17th day of December, 1911, the President caused to be delivered to the imperial Russian government by the American ambassador at St. Petersburg an official notification in behalf of the government of the United States announcing the intention to terminate the operation of this treaty upon the expiration of the year commencing the first of January, 1912, and,

"Whereas, said treaty is no longer responsive in various respects to the political principles and commercial needs of the two countries, and,

"Whereas, the construction placed thereon by the contracting parties differs upon matters of fundamental importance and interest to each, therefore be it

"Resolved, by the Senate and House of Representatives of the United States of America in Congress assembled that the notice just given by the President of the United States to the government of the empire of Russia to terminate said treaty in accordance with terms of said treaty is hereby adopted and ratified."

The abrogation of this treaty was received with considerable bitterness in Russia. The suggestion of the United States government that a new treaty should be made was met with the assertion that it was not practicable at the present time to enter into the matter (see *RUSSIA*).

Important matters were at issue during the year in the Far East and in these the United States had an interest. The uprising in China made it necessary for United States troops to be hurried from the Philippines to that country to protect American interests. During the year two important international loans in China in which the United States participated were brought to a conclusion. One of these was for the construction of the Hukuang Railway and

the other for the carrying out of the currency reforms to which China was pledged by treaties with the United States, Great Britain, and Japan. The signing of the fur seal treaty by the United States, Great Britain, Japan, and Russia is noted above in the paragraphs on *Treaties*.

UNITED STATES CENSUS. The work of the Census Bureau in 1911 was devoted to completing the population returns, which were left unfinished in 1910, and to the preparation of statistics relating to agriculture and manufactures. The results of the agricultural census will be found in the article *AGRICULTURE* and in the articles on the States, paragraph *Agriculture*. The statistics of manufactures will be found in the articles dealing with manufactures, and, so far as completed for the separate States during 1911, in the State articles.

It is expected that the work of the census on manufactures, agriculture, and population, with certain exceptions, will be completed on June 30, 1912, and that the results in the form of abstract-bulletins will be published by two or three months after that time. More detailed volumes covering the same subjects will probably be issued by January 1, 1913. It was necessary to defer the work on certain subjects until after July 1, 1912, on account of shortage of appropriations. These subjects include occupations, ownership of homes, statistics of institutions for the defective, dependent, and delinquent, and analyses of agricultural statistics according to tenure, color of farmer, and size of farm.

WHITE AND NEGRO POPULATION IN THE UNITED STATES

The Census Bureau issued during 1911 several interesting bulletins relating to the distribution and classification of population. The first of these related to the white and negro population of the United States on the date of the Thirteenth Census, April 15, 1910, and the results of this classification are noted in the following paragraphs. The figures were prepared under the supervision of Mr. William C. Hunt, chief statistician for population in the Bureau of the Census, and are subject to later revision.

According to the returns of the Thirteenth Census, the population of continental United States (that is, excluding Alaska, Porto Rico, and other outlying possessions), which was 91,972,266 in 1910, is subdivided as to color, as follows: White, 81,732,687, or 88.9 per cent.; negro, 9,828,294, or 10.7 per cent.; all other persons (Indians, Chinese, Japanese, etc.), 411,285, or 0.4 per cent. These figures for 1910 are compared with similar figures for each of the three preceding federal censuses in Table No. 1 below.

TABLE I.

Census year	Total	White	Negro	All other ¹	Per cent. of total		
					White	Negro	All other ¹
1910	91,972,266	81,732,687	9,828,294	441,285	88.9	10.7	0.4
1900	75,994,575	66,809,196	8,833,994	351,385	87.9	11.6	0.5
1890	62,947,714	55,101,258	7,488,676	357,780	87.5	11.9	0.6
1880	50,155,788	43,402,970	6,580,793	172,020	86.5	13.1	20.3

¹ Indians, Chinese, Japanese, etc.

² Enumeration in 1880 did not cover all Indians, as at later censuses.

At each succeeding federal census here considered, the white population has constituted a what larger percentage of the total popula-

tion, with a corresponding decrease in the percentage for the negro population. The whites now constitute 88.9 per cent. of the total popu-

lation, as compared with 86.5 per cent. in 1880, whereas, the negroes now constitute only 10.7 per cent. of the total population, as compared with 13.1 per cent. in 1880.

The following table shows the decennial increase in the white and negro population of continental United States since 1880. In figuring the increase from 1880 to 1890, the population (117,369 whites and 18,636 negroes) specially enumerated in Indian Territory and on Indian reservations in 1890 is excluded, as similar figures for 1880 are not available.

TABLE II.

Decade	Increase in white		Increase in negro	
	Number	Per cent.	Number	Per cent.
1900-1910	14,923,491	22.3	994,300	11.3
1890-1900	11,707,938	21.2	1,345,318	18.0
1880-1890	11,580,920	26.7	889,247	13.5

IMMIGRATION IN RELATION TO WHITE INCREASE. There has been an increase in white population since 1900 of 14,923,491, or 22.3 per cent., as compared with an increase in negro population of 994,300, or 11.3 per cent. The excess in the percentage of increase for the whites is due in part to the large immigration of foreign-born whites during the decade. There is practically no immigration of negroes.

It is possible, however, to determine approximately what the increase of the white population would have been apart from immigration. From a preliminary tabulation the Census Bureau has ascertained that of the entire number of foreign-born white persons who were enumerated at the Thirteenth Census, about 5,000,000, or 37 per cent., were reported as having come to this country since 1900. If this number is deducted from the increase in the white population, the latter then becomes less than 10,000,000, instead of 14,923,491, while the percentage of increase is not quite 15 per cent., instead of 22.3 per cent. This figure, 15 per cent., is fairly comparable with the 11.3 per cent. by which the negroes increased, since each percentage may be accepted as representing approximately the natural rate of increase—that is, the increase resulting from the excess of births over deaths.

In making these computations, however, no allowance has been made for native white persons who may have emigrated from the United States. But, as against this, no allowance either has been made for the children born in this country whose parents have come to this

country since 1900, and who almost certainly exceed the number of emigrants.

DECREASING RATE OF INCREASE OF WHITES, EXCLUSIVE OF IMMIGRANTS. Similar figures for the preceding decade, 1890-1900, show that at the census of 1900 there were about 2,570,000 foreign white persons then reported as having been in the United States less than ten years; excluding this number, the increase in the white population from 1890 to 1900 would have been about 9,130,000, instead of 11,707,938, or slightly more than 16 per cent. The percentage of increase for the white population, excluding immigrants, was thus less from 1900 to 1910 than from 1890 to 1900, whereas, for the total white population the rate was higher in the later decade than in the earlier. No similar tabulation regarding length of residence in the United States was made at the census of 1890, and so no direct computations for the decade 1880-1890 can be made, but rough estimates indicate that the increase in the white population, exclusive of immigrants, from 1880 to 1890 was less than 20 per cent., but higher than from 1890 to 1900.

Excluding immigrants the rate of increase of whites has decreased during each decade.

THE PERCENTAGE OF INCREASE IN NEGRO POPULATION. As against these changes in the percentages of increase for the white population, the census shows for the negro population an increase of 11.3 per cent. from 1900 to 1910, as compared with an increase, on the face of the returns, of 18 per cent. from 1890 to 1900, and of 13.5 per cent. from 1880 to 1890. That the rate for 1890 to 1900 should greatly exceed that for the preceding decade and also that for the following decade seems improbable on general principles, and it has been contended by certain statistical writers that it is indicative of a deficient enumeration of the negro population in 1890.

However that may be, these computations show conclusively that the higher rate of increase for the white population, as compared with the negro during the period under review, is not wholly due to the effects of immigration. The natural increase of the white population is on the whole noticeably greater than that of the negro.

WHITE AND NEGRO POPULATION PROPORTIONS IN THE SOUTH. Table No. 3 shows the total population of the South, and the proportion of white and negro, respectively, at each of the last four federal censuses.

TABLE III.

Census year	Total	White	Negro	All other ¹	Per cent. of total		
					White	Negro	All other ¹
1910	29,389,230	20,547,573	8,749,390	92,367	69.9	29.8	0.3
1900	24,523,527	16,521,970	7,922,969	78,588	67.4	32.3	0.3
1890	20,028,059	13,193,453	6,760,577	74,029	65.9	33.8	0.4
1880	16,516,568	10,555,427	5,963,908	7,238	63.9	36.0	(2)

¹ Indians, Chinese, Japanese, etc. ² Less than one-tenth of 1 per cent.; enumeration in 1880 did not cover all Indians, as at later censuses.

Of the total population of the South in 1910, shown by this table, the whites constituted 9 per cent. and the negroes 29.8 per cent., as varied with 67.4 and 32.3 per cent., respectively, in 1900, and with 63.9 and 36 per cent., in 1880. The gain since 1880 in proportion of the white population of the South is the result largely of higher natural increase among whites than negroes, although to some extent due to the migration of negroes to States outside the South. Neither

interstate migration nor immigration from foreign countries has added very largely to the white population of the South. The natural increase of the white population is found to be considerably higher in the South than it is in the North.

During the last decade, 1900-1910, the white population of the South increased 4,025,603, or 24.4 per cent., as compared with an increase of 826,421, or 10.4 per cent., for the negro population of the South.

CONDITIONS IN THE COUNTRY OUTSIDE OF THE SOUTH. For the remainder of the country outside of the South there has been an increase in white population during the decade from 50,287,226 to 61,185,114, the growth thus being 10,897,888, or 21.7 per cent. Negro population outside the South has grown from 911,025 to 1,078,904, i. e., 167,879, or 18.4 per cent.

As already explained, the increase of the white population in the North and West is largely

influenced by foreign immigration, while the increase of the negro population in those sections is in part the result of the migration of negroes from the South.

DETAILS FOR THE SOUTH, BY STATES. The statistics of the white and negro population of the South, based upon the returns of the censuses of 1910 and 1900, are presented in detail by States in Table No. 4.

This summary shows, first, that in South Caro-

TABLE IV.

State and Division	White		Negro		Per cent. of pop. in				Per cent. of increase, 1900-1910	
	1910	1900	1910	1900	1910		1900		W.	N.
	W.	N.	W.	N.	W.	N.	W.	N.	W.	N.
The South	20,547,573	16,521,970	8,749,390	7,922,969	69.9	29.8	67.4	32.3	24.4	10.4
South Atlantic	8,071,639	6,706,058	4,112,487	3,729,017	66.2	33.7	64.2	35.7	20.4	10.3
Delaware	171,103	153,977	31,181	30,697	84.6	15.4	83.4	16.6	11.1	1.6
Maryland	1,062,645	952,424	232,249	235,064	82.0	17.9	80.2	19.8	11.6	1.2
Dist. of Columbia ..	236,128	191,532	94,446	86,702	71.3	28.5	68.7	31.1	23.2	8.9
Virginia	1,389,809	1,192,855	671,096	660,722	67.4	32.6	64.3	35.7	16.5	1.6
West Virginia	1,156,817	915,233	64,173	43,499	94.7	5.3	95.5	4.5	26.4	47.5
North Carolina	1,500,513	1,263,603	697,843	824,469	68.0	31.6	66.7	33.0	18.7	11.7
South Carolina	679,162	557,807	835,843	782,321	44.8	55.2	41.6	58.4	21.8	6.8
Georgia	1,431,816	1,181,294	1,176,987	1,034,813	54.9	45.1	53.3	46.7	21.2	13.7
Florida	443,646	297,333	308,669	230,730	58.9	41.0	56.3	43.6	49.2	33.8
East South Central.	5,754,348	5,044,847	2,652,506	2,499,886	68.4	31.5	66.8	33.1	14.1	6.1
Kentucky	2,027,955	1,862,309	261,656	284,706	88.6	11.4	86.7	13.3	8.9	1.1
Tennessee	1,711,433	1,540,186	473,088	480,243	78.3	21.7	76.2	23.8	11.1	1.5
Alabama	1,228,841	1,001,152	908,275	827,307	57.5	42.5	54.8	45.2	22.7	9.8
Mississippi	786,119	641,200	1,009,487	907,630	43.7	56.2	41.3	58.5	22.6	11.2
West South Central	6,721,586	4,771,065	1,984,397	1,694,066	76.5	22.6	73.0	25.9	40.9	17.1
Arkansas	1,131,030	944,580	442,891	366,856	71.8	28.1	72.0	28.0	19.7	20.7
Louisiana	941,125	729,612	713,874	650,804	56.8	43.1	52.8	47.1	29.0	9.7
Oklahoma ²	1,444,535	670,204	137,612	55,684	87.2	8.3	84.8	7.0	115.5	147.1
Texas	3,204,896	2,426,669	690,020	620,722	82.2	17.7	79.6	20.4	32.1	11.2

¹ Decrease. ² Includes Indian Territory.

lina and Mississippi the negroes exceeded the whites at both censuses, although the proportion in 1910 is somewhat smaller than in 1900; and, second, that in West Virginia, Arkansas, and Oklahoma the negroes constituted a slightly larger proportion of the total population in 1910 than in 1900, principally as the result of the migration of negroes from other States.

This table shows further that in every Southern State, with the exception of West Virginia, Arkansas, and Oklahoma, the whites had a higher rate of increase than the negroes.

In Maryland, Kentucky, and Tennessee there has been since 1900 an actual decrease in the number of negroes; and in Delaware and Virginia there has been only a slight increase in negroes, namely, 1.6 per cent. in each case. These are all border States, and the facts stated are doubtless due largely to the migration of negroes from those States, partly, perhaps, to the more southerly States, but more particularly to States entirely outside of the South.

The full significance of the changes in the relative numbers of the two races in the South cannot be definitely stated until more complete statistics are available, particularly those showing the interstate migration of the native-born population.

ELEMENTS OF THE POPULATION OF THE UNITED STATES

The second bulletin analyzes the elements of the population of the United States. The results of this analysis are shown below:

The statement below distributes the white population with respect to native or foreign birth, and for the native white, distinguishes those having native-born parents from those having foreign-born parents. The statistics were prepared under the supervision of Mr. William C. Hunt, chief statistician for population in the Bureau of the Census, and are subject to later revision.

The white population, taken as a whole, has constituted at each census a slightly larger percentage of the total population, with a corresponding decrease in the percentage for the negro population, at each succeeding federal census since and including that of 1880. The number and proportion of the total population for each of the elements of the white population, as well as for the total negro population and the total other colored population (Indians, and Chinese, Japanese, and other Asiatics), are shown for the same censuses in Table No. 5.

TABLE V.

General Nativity and Color	Number		1890		Per cent. of total			
	1910	1900	1890	1880	1910	1900	1890	1880
Total	91,972,266	75,994,575	62,947,714	50,155,783	100.0	100.0	100.0	100.0
Native white	68,389,104	56,595,379	45,979,391	36,843,291	74.4	74.5	73.0	73.5
Native parents	49,488,441	40,949,362	34,475,716	.....	53.8	53.9	54.7	.....
Foreign-born parents ..	18,900,663	15,646,017	11,503,675	.....	20.6	20.6	18.3	.....
Foreign-born white	13,343,583	10,213,817	9,121,867	6,559,679	14.5	13.4	14.5	13.1
Negro	9,828,294	8,833,994	7,488,676	6,580,793	10.7	11.6	11.9	13.1
All other ¹	411,285	351,385	357,780	172,020	0.4	0.5	0.6	0.3

¹ Indians, and Chinese, Japanese, and other Asiatics.

NATIVE WHITE AND FOREIGN-BORN WHITE PROPORTIONS. Of the total population of continental United States—that is, excluding Alaska, Porto Rico, and other outlying possessions—in 1910, the native white element, numbering 68,389,104, constituted 74.4 per cent., while the foreign-born white element, numbering 13,343,583, constituted 14.5 per cent. The native white proportion in 1910 was almost the same as in 1900, but slightly larger than in 1890 or 1880. The foreign-born white population constituted 13.1 per cent. of the total in 1880, rose to 14.5 per cent. in 1890, fell to 13.4 per cent. in 1900, and was again 14.5 per cent. in 1910. These fluctuations were due to the very large immigration from 1880 to 1890 and again from 1900 to 1910.

Of the entire white population in 1910, namely, 81,732,687, the foreign-born whites constituted 16.3 per cent., as compared with 15.3 per cent. in 1900, 16.8 per cent. in 1890, and 15.1 per cent. in 1880.

For the last three federal censuses the native white population has been further subdivided with respect to parentage. Those classed as having native parents are persons with both parents native; those having one or both parents foreign born are classed as of foreign parentage. Table No. 5 shows that in 1910 the native white population having both parents native numbered 49,488,441, while those having one or both parents foreign born numbered 18,

900,663, or 53.8 and 20.6 per cent., respectively, of the total population of the country at that census. These proportions are practically the same as those shown by the census of 1900, but, as compared with 1890, there has been a slight decrease—from 54.7 to 53.8 per cent.—in the proportion of native white persons of native parentage, and a considerable increase—from 18.3 to 20.6 per cent.—in the proportion of native white persons of foreign parentage. The latter class constituted 27.6 per cent. of the total native white population in both 1910 and in 1900, as compared with 25 per cent. in 1890.

DECENNIAL INCREASE IN THE MAIN ELEMENTS. Table No. 6 shows the decennial increase in each of the main elements of the population of continental United States since 1880. In figuring the increase from 1880 to 1890 the population (325,464) specially enumerated in Indian Territory and on Indian reservations in 1890 is excluded, as the corresponding population for 1880 was not enumerated. It should be borne in mind that, except for the negro population, which is not appreciably affected by immigration, none of these percentages of increase represent natural increase from excess of births over deaths. Thus the native white persons of native parentage for 1910 include not merely the children born since 1900 as the offspring of the class of native white of native parents, but also as the offspring of the class of the native white persons of foreign parentage.

TABLE VI.

General Nativity and Color	Increase, 1900-1910		Increase, 1890-1900		Increase, 1880-1890	
	Number	P.C.	Number	P.C.	Number	P.C.
Total	15,977,691	21.0	13,046,861	20.7	12,466,467	24.9
Native white	11,793,725	20.8	10,615,988	23.1	9,018,732	24.5
Native parents	8,539,079	20.9	6,473,646	18.8	.....	....
Foreign-born parents	3,254,646	20.8	4,142,342	36.0	.....	....
Foreign-born white	3,129,766	30.6	1,091,950	12.0	2,562,188	39.1
Negro	994,300	11.3	1,345,318	18.0	889,247	13.5
All other ¹	59,900	17.0	2 6,395	2 1.8	2 3,700	2 2.2

¹ Indians, and Chinese, Japanese and other Asiatics. ² Decrease.

THE NATURAL RATE OF INCREASE. Since 1900 the white population as a whole, as shown by a preliminary statement issued recently by the Census Bureau, has increased 22.3 per cent., as compared with an increase in the negro population of 11.3 per cent., the excess in the percentage of increase for the whites being due in part, as then explained, to the large immigration of foreign-born whites during the decade. It was also estimated in the same statement that the increase in the white population, apart from immigration, would have been not quite 15 per cent., representing approximately, though not precisely, the natural rate of increase. It was further stated that the apparently very marked falling off in the percentage of increase of the negro population during the decade 1900-1910, as compared with the preceding decade, is possibly due to an undercount of the negroes in 1890.

It is not possible to determine the extent to which the increase in each element of the white population is due to natural increase from excess of births over deaths, but, in judging the significance of the percentages shown in Table No. 6 consideration should be given to the difference between the actual and modified percentages of increase just presented for the white population as a whole.

GRADUAL DECLINE IN NATIVE WHITE RATE OF INCREASE. Disregarding the question as to the source of the increase, Table No. 6 shows that the native white population has increased 20.8 per cent. since 1900, as compared with a gain of 23.1 per cent. from 1890 to 1900 and of 24.5 per cent. from 1880 to 1890; there being a gradual decline in the rate of increase from decade to decade. In the foreign-born white population, on the other hand, there has been an increase of 30.6 per cent. since 1900, as compared with a gain of only 12 per cent. from 1890 to 1900 and of very nearly 40 per cent. (39.1) from 1880 to 1890; these differences arising from the fluctuations in the number of immigrants during the three decades in question.

The native whites of native parents and those of foreign-born parents increased at substantially the same rate during the last decade, 1900-1910, but in the preceding decade, 1890-1900, the rates of increase for the two elements differed materially. For the native white element of native parentage, as shown by Table No. 6 the rate of increase from 1900 to 1910 is considerably higher than that from 1890 to 1900, namely, 20.9, as against 18.8 per cent., whereas for the native white element of foreign parentage the rate of increase for the last decade is very much less than that for the pre-

ceding decade, or 20.8, as against 36 per cent. These variations in the rates of increase for the two decades are largely the result of the difference in the amount of immigration at different periods, as affecting primarily the number of native white persons reported as having one or both parents foreign born and ultimately the number of native white persons reported as having both parents native born.

An interesting bulletin giving the proportion of males and females in the population shows the following results:

MALES AND FEMALES IN THE POPULATION

In the United States as a whole there are 47,332,122 males and 44,640,144 females, or a

proportion of 106 males for every 100 females.

Considerable interest attaches to the deviation from the numerical equality of the two sexes here noted. While it is commonly assumed that the two sexes are equal in number, the fact is that there is always a slight difference between them. Most northern European countries show an excess of females. The contrary fact in the United States has been generally ascribed to the effects of immigration, as it is well known that among immigrants males predominate to a large extent. This is not the full explanation, as can be seen from a consideration of the figures by elements of the population as shown in Table No. 7.

TABLE VII.

General Nativity and Color	1910		Males per 100 females	1900		Males per 100 females
	Males	Females		Males	Females	
Total population	47,332,122	44,640,144	106.0	38,816,448	37,178,127	104.4
Native white:						
Native parents	25,229,294	24,259,147	104.0	20,849,847	20,099,515	103.7
Foreign parents	9,487,063	9,473,610	99.5	7,836,603	7,809,414	100.3
Foreign white	7,522,445	5,821,138	129.2	5,515,285	4,698,532	117.4
Negro	4,886,358	4,941,936	98.9	4,886,547	4,447,447	98.6
All other	266,972	144,313	185.0	228,166	123,219	185.2

THE EXCESS OF MALES. Among the foreign white there are 129.2 males for every 100 females, this proportion reflecting the familiar fact already noted with respect to the excess of males among immigrants.

But this excess of males is also found in the largest single group of the population of the United States—the native white of native parents. Of the latter there are 25,229,294 males and 24,259,147 females, or a proportion of 104 males for every 100 females. This disparity is due wholly to natural causes; the only other cause which could affect it is emigration from the United States, and such emigration is small and is certainly not greater in case of females than in case of males.

In the next group—the native white of foreign parents—the numbers of the two sexes are almost equal, with a slight excess of females.

Among the negroes, however, there is a more noticeable preponderance of females, 98.9 males to 100 females.

The small group "All other" in which there are nearly twice as many males as females is composed of Indians and immigrant Asiatics, the latter being mainly male.

Due in large measure to the effects of recent immigration, the proportion of males for 100 females in the population as a whole has risen slightly between 1900 and 1910, namely, from 104.4 to 106. The proportions of the sexes in the several native-born groups have not changed materially.

WHY THERE ARE MORE MALES. At birth the number of males always exceeds the number of females, but male mortality is always greater than female. Consequently, through the excess

of male deaths, the number of females gradually approaches that of males and in the later years of life exceeds it. In countries where the death rate is high an equality is reached at a comparatively early age, and the subsequent inequality in favor of the females outweighs the previous inequality in favor of the males, so that in the population as a whole there are more females than males. In the United States there is generally a lower death rate than in northern European countries, and the difference between the death rates of males and females is not so marked. The equality in the number of the sexes occurs here at a later age than in European countries, and the slightly greater male death rate does not overcome the initial advantage which the males have at birth. The result is for the native white population of the United States generally an excess of males. For the native white of foreign parents, where the conditions with respect to mortality are not so favorable, the result is as shown by Table No. 7, that the two sexes are almost identical in number, with, in fact, a slight preponderance of females in 1910, as against a slight excess of males in 1900. On the other hand, the negroes, with their greater death rate, show the same result as is observed in European countries, namely, an appreciable excess of females in the population both in 1910 and 1900.

IN THE GEOGRAPHIC DIVISIONS. If the numbers of males and females in the several geographic divisions are compared, the general result is found to reflect the composition of the population of these districts with respect to the relative frequency of the different racial and nativity groups, as shown in Table No. 8.

TABLE VIII.

Division	1910		Males per 100 females	1900		Males per 100 females
	Males	Females		Males	Females	
United States	47,332,122	44,640,144	106.0	38,816,448	37,178,127	104.4
New England	3,235,137	3,287,544	99.3	2,763,796	2,828,221	97.7
Middle Atlantic	9,813,181	9,502,711	103.3	7,761,081	7,693,597	100.9

TABLE V III. (cont.)

East North Central	9,392,792	8,857,829	106.0	8,177,308	7,808,273	104.7
West North Central	6,092,869	5,545,052	109.9	5,412,014	4,935,409	109.7
South Atlantic	6,134,600	6,060,295	101.2	5,222,595	5,220,885	100.0
East South Central	4,245,170	4,164,731	101.9	3,809,666	3,738,091	101.9
West South Central	4,544,485	4,240,049	107.2	3,372,256	3,160,034	106.7
Mountain	1,478,010	1,155,507	127.9	940,038	734,619	128.0
Pacific	2,365,878	1,826,426	129.5	1,357,694	1,058,998	128.2

Where the negroes are most numerous, as in the South Atlantic and East South Central States, the sexes are most nearly equal. Those States which owe a large part of their population to accretions from elsewhere, whether from foreign countries or from other parts of the United States, show the greatest preponderance of males. The New England division alone shows an excess of females; while this division has grown very largely through immigration, it has from the character of its industries drawn more female immigrants proportionately than other parts of the country. The New England States have, moreover, lost some of the natural excess of males through migration of persons born in New England to more western communities.

In the Middle Atlantic division the proportion of 103.3 males to 100 females is somewhat less than that for the United States as a whole. It would appear that the effects of foreign immigration are in part offset by the migration from these States of native-born citizens. The increasing division, however, of the stream of immigration in recent years to eastern communities instead of western communities is reflected in the fact that in each of the three northern divisions east of the Mississippi River the proportion of males is somewhat larger in 1910 than it was in 1900.

The East North Central division, where there are 106 males for every 100 females, corresponds to the general average of the United States; the proportion of males has increased during the decade.

Among the remaining sections of the country, the South Atlantic and East South Central divisions, which have, respectively, 101.2 and 101.9 males to every 100 females, fall below the average for the United States as a whole largely because of the influence of the negroes in the total; while the West North Central (109.9) and the West South Central (107.2) rise slightly above the general average for the United States. The most marked divergence from the general average is found in the Mountain and Pacific divisions, which have, respectively, 127.9 and 129.5 males for every 100 females. In all the southern divisions and those lying west of the Mississippi River there has been very little change in the proportions during the past 10 years.

EFFECTS OF MIGRATION. The effects of westward migration within the country itself are brought out more clearly by considering the sex proportions for the different elements of the population in the different geographical divisions, as shown in Table No. 9. Among the

TABLE IX.

Divisions	Males per 100 females				
	Native white native parents	Native white foreign parents	Foreign white	Negro	All other
United States	104.0	99.5	129.2	98.9	185.0
New England	98.1	96.0	104.8	97.7	403.5
Middle Atlantic	98.9	96.5	120.9	94.9	323.9
East North Central	102.9	98.7	131.2	108.3	147.5
West North Central	106.6	103.3	141.3	108.1	112.2
South Atlantic	102.1	97.6	146.9	97.5	135.1
East South Central	103.5	94.5	139.3	98.4	137.1
West South Central	108.2	105.1	138.9	100.4	105.5
Mountain	119.8	112.7	189.7	121.8	143.2
Pacific	117.4	106.8	181.9	120.6	395.4

native white of native parents there are in the country as a whole for every hundred females 104 males; but in New England, where the proportion is 98.1, and in the Middle Atlantic States, where it is 98.9, the females in this element of the population exceed the males. The East North Central division, with a proportion of 102.9, the South Atlantic, with one of 102.1, and the East South Central, with one of 103.5, fall below the average for the United States in respect to excess of males among the native whites of native parentage. On the other hand all of the sections west of the Mississippi River have a considerably larger proportion of males per hundred females among this class than the United States as a whole.

In the group "Native white of foreign parents" there is in the United States as a whole

practical equality, but east of the Mississippi River there are more females than males, while in all the sections west of the Mississippi River there are more males than females.

Among the foreign white there are in the United States as a whole 129.2 males for every 100 females; but the New England division, with 104.8, and the Middle Atlantic division, with 120.9, fall below this average. It is particularly in the regions west of the Mississippi River that a very high ratio of males is to be found among the foreign-born whites; in the Mountain and Pacific divisions there are very nearly two males of this class for every female.

The negro has 98.9 males to every 100 females, and the proportions are somewhat lower in the two southern divisions east of the Mississippi River, where the negro is at home. Other sec-

tions offer contrasts. In the New England and Middle Atlantic divisions, the proportion of negro males is less than the average, indicating, probably, a migration for agricultural and other heavy labor.

WHERE FEMALES OUTNUMBER MALES. Attention has been called to the fact that in the United States as a whole the males predominate. There are only six States, including the District of Columbia, in which at the present time females are in the majority, as follows:

TABLE X.

State	Males	Females
Massachusetts	1,655,226	1,711,190
Rhode Island	270,359	272,251
Maryland	644,225	651,121
District of Columbia	158,050	173,019
North Carolina	1,098,471	1,107,816
South Carolina	751,842	763,558

In these six States there is a net excess of 100,782 females, but in the country as a whole there is a net excess of 2,691,978 males.

The six States above named also showed an excess of females in 1900, and, in addition, there were five other States—New Hampshire, New York, New Jersey, Virginia, and Georgia—which then had an excess of females but which now have an excess of males. The net excess of females in 1900 in these 11 States was 181,740, but for continental United States as a whole the net excess of males in 1900 was 1,638,321.

NATIONALITY OF THE FOREIGN-BORN WHITE POPULATION OF THE UNITED STATES

The fourth of these bulletins relates to the nationality of the foreign-born population of the United States.

This statement covers only the principal countries of birth—those, in general, for each of which at the census of 1910 upwards of 100,000 persons were reported—and the figures for 1910 are given in round numbers, being subject to possible revision as the result of later tabulations. The statistics relate to white persons only.

Table No. 11 gives comparative figures for each principal country of birth as shown by the censuses of 1910 and 1900, and also in each case the numerical increase during the decade.

TABLE XI.

Country	1910	1900	Increase 1
Total foreign-born white	13,342,500	10,213,817	3,128,683
Austria-Hungary ..	1,658,700	636,968	1,021,732
Austria	1,190,200	491,259	698,941
Hungary	468,500	145,709	322,791
Germany	2,499,200	2,813,413	-314,213
Great Britain	1,221,400	1,166,863	54,537
England	875,400	839,830	35,570
Scotland	263,400	233,473	29,927
Wales	82,600	93,560	-10,960
Ireland	1,351,400	1,615,232	-263,832
Italy	1,341,800	483,963	857,837
Russia and Finland ..	1,706,900	640,710	1,066,190
Russia	1,577,300	578,072	999,228
Finland	129,600	62,638	66,962
Norway, Sweden, and Denmark..	1,250,500	1,062,124	188,376
Norway	403,500	336,379	67,121
Sweden	665,500	571,986	93,514
Denmark	181,500	153,769	27,741
Other Europe	749,300	450,036	299,264
France	117,100	104,031	13,069
Greece	101,100	8,513	92,587
Netherlands	120,000	104,922	15,078
Switzerland	124,800	115,581	9,219
All other	286,300	116,989	169,311
Canada and Newfoundland	1,198,000	1,172,745	25,255
Mexico	218,800	101,908	116,892
All other countries..	146,500	69,855	76,645

1 A minus sign (—) denotes decrease.

Table No. 12 shows the per cent. of increase during the decade 1900-1910 for each of the leading countries or groups of countries and also the per cent. of the total foreign-born white population for both 1910 and 1900 represented by each.

TABLE XII.

Country	Per cent. of total 1910	Per cent. of total 1900	Per cent. increase, 1900-1910
Total foreign-born white	100.0	100.0	30.6
Germany	18.7	27.5	-11.2
Ireland	10.1	15.8	-16.3
Great Britain	9.2	11.4	4.7
Canada and Newfoundland	9.0	11.5	2.2
Norway, Sweden, and Denmark	9.4	10.4	17.7
Austria-Hungary ..	12.4	8.2	160.4
Italy	10.1	4.7	177.3
Russia and Finland ..	12.8	6.2	166.4
Other Europe	5.6	4.4	66.5
Mexico	1.6	1.0	114.7
All other countries ..	1.1	0.7	109.7

IMMIGRATION FROM 1821 TO 1870. From 1821 to 1870 natives of Germany, Great Britain, Ireland, Scandinavia, and Canada together contributed substantially nine-tenths of all the immigrants to this country, but since 1870 their proportion of the total number has steadily declined—from somewhat more than four-fifths for 1871-1880 to three-fourths for 1881-1890, about two-fifths for 1891-1900, and only a little more than one-fifth for 1901-1910.

Immigrants from Austria-Hungary, Italy, and Russia, on the other hand, constituted less than 1 per cent. of all the immigrants from 1821 to 1870, but thereafter their proportion has steadily increased—from about one-sixteenth for 1871-1880 to one-sixth for 1881-1890, one-half for 1891-1900, and very nearly two-thirds for 1901-1910.

As the result of these changes in the sources of immigration to this country, and because of the very large number of immigrants during the decade 1901-1910, the relative distribution of the foreign-born white population at the last two federal censuses, and the increase or decrease of its constituent elements since 1900, is a matter of very considerable interest and importance.

RELATIVE DISTRIBUTION OF FOREIGN-BORN WHITES, 1901-1910. At the census of 1910, as shown by Tables 11 and 12, out of an approximate total for continental United States of 13,342,500 foreign-born whites, the persons born in Germany numbered 2,499,200 and constituted 18.7 per cent., as compared with 2,813,413 in 1900, or 27.5 per cent. of the total at that census. This is a loss of the number of natives of Germany during the decade of 314,213, or 11.2 per cent.

A similar condition is also apparent with respect to natives of Ireland. At the census of 1910 there were reported 1,351,400 persons born in Ireland, constituting 10.1 per cent. of the entire foreign-born white population, as compared with 1,615,232 persons so born, or 15.8 per cent. of the total, at the preceding census, a loss from 1900 to 1910 of 263,832, or 16.3 per cent.

During the decade 1900-1910 there was an increase in the number of natives of Great Britain from 1,166,863 to 1,221,400, or 4.7 per cent., although for natives of Wales alone there was a

decrease of very nearly 11,000; an increase in the number of natives of Canada and Newfoundland from 1,172,745 to 1,198,000, or 2.2 per cent.; and an increase in the number of natives of Norway, Sweden, and Denmark from 1,062,124 to 1,250,500, or 17.7 per cent. Natives of each of these groups of countries, as well as of Germany and Ireland, constituted a considerably less proportion of the total foreign-born white population in 1910 than in 1900. Natives of all of these countries taken together were 56.4 per cent. of the total in 1910, as against 76.8 per cent. in 1900.

THE NATIONALITIES INCREASING IN NUMBERS. Against the decline in the proportion for these countries stand very large gains shown (see Table No. 11 for natives of Austria-Hungary, Italy, and Russia and Finland, for each of which the proportion in 1910 is more than double that shown for the preceding census.

In 1900 there were in continental United States 636,968 natives of Austria-Hungary, constituting 6.2 per cent. of the total foreign-born whites, but in 1910 their number was 1,658,700, or 12.4 per cent. of the total.

Similarly, of natives of Italy there were 483,963, or 4.7 per cent., in 1900 and 1,341,800, or 10.1 per cent., in 1910; and of natives of Russia and Finland 640,710, or 6.3 per cent., in 1900 and 1,706,900, or 12.8 per cent., in 1910.

THE FIFTY CHIEF MANUFACTURING CITIES IN THE UNITED STATES

For persons born in each of these three countries an increase of more than 150 per cent. is shown for the decade 1900-1910; together they new constitute fully 35 per cent. of the total foreign-born white population of the country as against a little more than 17 per cent. 10 years ago.

There has been an increase during the decade of over 100 per cent. in the number of natives of Mexico in this country—from 101,908 in 1900 to 218,800 in 1910—but they are largely confined to the border States of Texas, California, and New Mexico.

POPULATIONS OF CITIES AND TOWNS. The populations of the principal cities and towns in the States in 1910 will be found in the paragraph *Population*, under the States.

FIFTY LEADING MANUFACTURING CITIES. The rank of the cities of the country with respect to manufactures is in many cases decidedly different from their rank in population. Thus Boston ranks fifth in population, but eighth in value of manufactured products; Baltimore, seventh in population, but thirteenth in value of manufactured products; Los Angeles, sixteenth in population, but thirty-second in value of products. Kansas City, Kan., on the other hand, by reason of the large slaughtering establishments there, ranks fifteenth in value of manufactured products, but is not among the fifty

City	Wage earners		Value of Products		Value added by manufacture		Per cent. of increase	
	Average No.	Rank	Amount expressed in thousands	Rank	Amount in thousands 1899-1909	Rank	Wage earners average number	Value of products 1899-1909
New York, N. Y.	554,002	1	\$2,029,693	1	\$937,538	1	42.6	73.1
Chicago, Ill.	293,977	2	1,281,171	2	487,701	2	32.9	60.6
Philadelphia, Pa.	251,884	3	746,076	3	316,984	3	17.3	43.5
St. Louis, Mo.	87,371	4	328,495	4	140,306	4	34.8	69.6
Cleveland, O.	84,728	5	271,961	5	118,160	6	53.1	95.2
Detroit, Mich.	81,011	6	252,992	6	122,774	5	111.1	186.3
Pittsburgh, Pa.	67,474	9	243,454	7	94,927	8	—6.0	11.6
Boston, Mass.	69,637	8	237,457	8	112,880	7	31.8	45.9
Buffalo, N. Y.	51,412	13	218,804	9	82,266	12	50.0	107.1
Milwaukee, Wis.	59,502	12	208,324	10	88,503	10	44.4	87.9
Newark, N. J.	59,955	11	202,511	11	87,832	11	33.8	79.6
Cincinnati, O.	60,192	10	194,516	12	92,584	9	9.6	37.8
Baltimore, Md.	71,444	7	186,978	13	79,954	13	7.3	38.4
Minneapolis, Minn.	26,962	25	185,405	14	45,412	18	37.4	75.2
Kansas City, Kan.	12,294	42	164,081	15	19,691	44	29.6	105.0
San Francisco, Cal.	28,244	21	133,041	16	56,824	15	—13.2	24.8
Jersey City, N. J.	25,454	28	128,775	17	39,458	21	46.4	76.6
Indianapolis, Ind.	31,815	19	126,522	18	42,371	20	51.6	113.3
Providence, R. I.	46,381	14	120,241	19	55,471	16	20.9	52.9
Rochester, N. Y.	39,108	15	112,676	20	62,002	14	39.4	88.8
Louisville, Ky.	27,023	24	101,284	21	47,156	17	17.2	53.2
South Omaha, Neb.	6,306	48	92,436	22	14,763	48	—0.3	83.0
Youngstown, O.	10,498	45	81,271	23	18,979	45	—21.0	139.7
Lawrence, Mass.	30,542	20	79,993	24	34,555	23	46.1	91.6
New Orleans, La.	17,186	37	78,794	25	30,062	28	6.2	37.2
Worcester, Mass.	28,221	22	77,148	26	34,547	25	24.9	64.9
Bayonne, N. J.	7,519	47	73,641	27	14,709	49	61.0	90.8
Akron, O.	15,831	39	73,158	28	30,087	27	91.7	232.3
Perth Amboy, N. J.	5,866	50	73,093	29	9,161	50	192.6	419.8
Lynn, Mass.	27,368	23	71,503	30	30,142	26	67.1	81.7
Paterson, N. J.	32,004	18	69,584	31	34,856	22	12.1	43.5
Los Angeles, Cal.	17,327	36	68,586	32	29,673	29	235.0	353.2
Bridgeport, Conn.	25,775	27	65,609	33	27,662	32	51.3	95.6
Fall River, Mass.	17,139	16	64,146	34	28,622	31	21.2	64.0
Peoria, Ill.	5,981	49	63,061	35	45,288	19	—0.3	41.0
Toledo, Ohio.	18,878	34	61,230	36	27,146	35	48.1	91.5
Omaha, Neb.	8,023	46	60,854	37	17,439	46	52.1	59.8
Dayton, Ohio.	21,549	31	60,378	38	32,850	24	49.6	94.7
Lowell, Mass.	32,576	17	60,271	39	27,440	34	11.4	46.3
Yonkers, N. Y.	12,711	41	59,334	40	16,132	47	68.2	242.9
St. Paul, Minn.	19,339	33	58,990	41	28,690	30	48.5	96.3
Kansas City, Mo.	14,642	40	54,704	42	23,742	38	51.0	131.9
New Bedford, Mass.	26,568	26	53,238	43	24,674	37	74.1	127.5
Denver, Colo.	12,053	43	51,538	44	20,611	43	41.9	36.0
Reading, Pa.	24,145	29	51,135	45	21,287	42	42.9	56.5
New Haven, Conn.	23,547	30	51,071	46	26,752	36	33.8	46.3
Seattle, Wash.	11,331	44	50,569	47	22,550	39	155.2	230.0
Waterbury, Conn.	20,170	32	50,350	48	21,624	41	52.5	66.0
Syracuse, N. J.	18,143	35	49,435	49	27,659	33	53.7	86.2
Camden, N. J.	16,527	38	49,138	50	21,754	40	113.5	173.4

1 A minus sign (—) denotes decrease.

principal cities from the standpoint of population. Of the fifty cities in the United States which have over 100,000 inhabitants, fourteen are not included among the fifty cities having the largest value of manufactures.

In the case of some cities tabulated on page 757 the rank with respect to the number of wage earners and the value added by manufacture is very different from that with respect to the gross value of products, these differences being dependent upon the character of the predominating industries. It is noteworthy, however, that the thirteen cities, New York, Chicago, Philadelphia, St. Louis, Cleveland, Detroit, Pittsburgh, Boston, Buffalo, Milwaukee, Newark, Cincinnati, and Baltimore, which rank highest in gross value of products are also the thirteen which occupy the highest rank with respect to wage earners and value added by manufacture, although considered individually these cities do not in all cases hold the same rank in each of the three respects. Conspicuous instances of cities having higher rank in gross value of products than in number of wage earners or value added by manufacture are Kansas City, Kan., South Omaha, Youngstown, Bayonne, and Perth Amboy. On the other hand, cities which lead in the manufacture of textiles, such as Lawrence, Fall River, Lowell, New Bedford, and Paterson, have a decidedly higher rank with respect to number of wage earners than with respect to either value of products or value added by manufacture.

The thirteen cities showing percentages of increase in the value of products, ranging over 100 per cent. between 1899 and 1909, arranged in ranking order, are: Perth Amboy, Los Angeles, Yonkers, Akron, Seattle, Detroit, Camden, Youngstown, Kansas City, Mo., New Bedford, Indianapolis, Buffalo, and Kansas City, Kan.

In percentage of increase in average number of wage earners, the cities which showed more than 50 per cent. between 1899 and 1909, arranged in ranking order, are: Los Angeles, Perth Amboy, Seattle, Camden, Detroit, Akron, New Bedford, Yonkers, Lynn, Bayonne, Syracuse, Cleveland, Waterbury, Omaha, Indianapolis, Bridgeport, Kansas City, Mo., and Buffalo.

UNITED STATES DEPARTMENT OF AGRICULTURE. The work done in the several divisions of the United States Department of Agriculture will be found in the various articles distributed throughout this book. For notes relating to the enforcement of the pure food and drug laws, see the article **FOOD AND NUTRITION**; for studies in soils and use of phosphates, see **SOILS AND FERTILIZERS**. Efforts to eradicate insect pests are described in the article **ENTOMOLOGY**. The results of the work of the Office of Experiment Stations will be found described in the articles **AGRICULTURAL EDUCATION**, **AGRICULTURE**, and **AGRICULTURAL EXPERIMENT STATIONS**. See also **ROADS AND PAVEMENTS**.

UNITED STATES STEEL CORPORATION. COMMISSIONER OF CORPORATIONS' REPORT. On July 1 Mr. Herbert Knox Smith, commissioner of corporations, submitted the first of three parts of a report on the history, organization, capitalization, and monopoly power of the steel corporation. He pointed out that this is a holding company owning, in most cases, all the stock of constituent companies; and that its formation was due to a threatening state of cutthroat competition in the steel industry in 1900-1901. The report analyzed the capitalization and property values of the corporation

at the time of its formation and at various times in its history. By different methods the commissioner computed the actual total value of the property of the corporation in 1901 at \$700,000,000; the amount of water in the capitalization at that time was placed at \$721,000,000. He declared the entire issue of about \$508,000,000 common stock and from one-fifth to two-fifths of the preferred stock were not represented by physical property. During the next ten years, however, he found that the corporation had invested \$505,000,000 in plants and other property, of which \$435,000,000 was from the profits of the corporation. He therefore computed the total actual value of the investment of the corporation on December 31, 1910, at \$1,187,000,000; so that by his figures the capitalization on that date exceeded the actual investment by \$281,000,000. The corporation's own estimate of the value of its holdings at that date was \$1,652,000,000. With reference to the capitalization the commissioner called attention to the claim of the corporation that the combination had increased the value of each of the constituent companies and that, therefore, a considerable increase in the amount of capital at the time of the formation of the trust was justifiable. He pointed out, however, that it is not justifiable, from the standpoint of public policy, to permit corporations to secure monopoly power by combination and then capitalize the increase earnings due to such power.

A considerable part of the difference in the commissioner's and corporation's estimates of the true value of the properties was due to the differences in valuation of the ore properties held by the corporation. The report valued these at only \$120,000,000, whereas the corporation itself valued them at \$641,000,000. It was in this control of ore supplies and the means of transporting them that the commissioner found the greatest elements of monopoly. Through the lease of the Great Northern ore fields and others the corporation had obtained control of 75 per cent. of the mines in the region of the Great Lakes with a total of more than 2,500,000,000 tons of iron ore. Mr. Smith held that this leasehold system which "lends itself to such marked concentration of ore property for many years in advance (a common term of leases being fifty years) at a comparatively small cost involves questions of the highest public importance." The corporation's ability to exercise monopoly power in the control of iron ore was greatly increased, according to the report, by the two ore railroads owned by the corporation in the iron mining districts. These roads operate for 30 per cent. of gross earnings, as compared with an average of 66 per cent. for American railroads, and yet it charges one cent. per ton mile for low-grade traffic as against two-fifths of a cent on other roads. This reduces the cost of ore to the corporation while increasing that cost to those competitors dependent on these roads for transportation. The report strongly criticises the commission paid the promoters of the combination at the time of its formation. Commissioner Smith found that in 1901 the syndicate pledged itself to produce \$25,000,000 working capital, that they expended \$3,000,000 more in starting the concern, and that it had a nominal liability of \$200,000,000, though "it was generally understood at the time that only \$25,000,000 would be called from syndicate members." For this service

1,300,000 shares of stocks was paid, on which about \$90,500,000 was realized, giving a profit of \$62,500,000.

As to the general control of the steel industry by the corporation the commissioner found that the proportion of business controlled by the corporation had more or less steadily diminished from the date of its formation. This verified the statement of Chairman Gary that the steel corporation had always conducted its affairs in a reasonable manner and that it had never sought more than 60 per cent. of the steel business of the country.

Although the commissioner found many things in the management of the corporation that were praiseworthy in relation both to the public and to its employees, nevertheless he harshly criticised the wages and hours of labor maintained by the corporation. His report here harmonized with other investigations, showing that the labor conditions in the steel industry were a disgrace to the nation.

As to the earnings of the steel trust the report states, on the basis of a careful analysis and revision of the corporation's own figures of investments and earnings, that the average for the ten years was 12 per cent., ranging from 7.6 per cent. to 15.9 per cent. The aggregate net earning in that period were \$1,100,000,000.

Shortly after the publication of this report the management of the steel corporation announced that they would cancel their leases of the Great Northern ore fields by giving the necessary two years' notice; and that they would reduce the rates of transportation on their ore roads from eighty cents to sixty cents per ton. This announcement was made on the same day, but a few hours before suit for the dissolution of the corporation was begun at Trenton, N. J.

STANLEY COMMITTEE INQUIRY. On May 16 the House of Representatives passed a resolution providing for the appointment of a committee to investigate the activities of the steel corporation and its subsidiary companies. Representative Stanley of Kentucky was made chairman. Other members were Bartlett of Georgia, Beall of Texas, Littleton of New York, and McGillicuddy of Maine, Democrats; Olmsted of Pennsylvania, Young of Michigan, Sterling of Illinois, and Danforth of New York, Republicans. This committee was authorized to ascertain whether the steel company or any of its officers or agents "have caused or have a tendency to cause restriction of competition." It was to investigate the whole question of competition, capitalization, and the official conduct of the corporation's officers. It held hearings at Washington in August.

One of the most interesting witnesses before that committee was President Roosevelt, who was questioned as to the purchase of the Tennessee Coal and Iron Company during the panic of 1907. He vigorously defended his action in saying that at that time he saw no reason for prosecution. He assumed entire responsibility for what was done. He claimed that the action checked the panic and was, therefore, beneficial; and that the opposite course would have been "well-nigh criminal." He pointed out that Judge Gary and Mr. Frick told him at that time that the policy of the corporation was to limit its proportion of the steel business to 60 per cent.; that it was at that time appreciably below that figure and that the purchase of the Southern company would not increase its share of the steel business to more than 62

per cent. On this ground the ex-President thought that, disregarding the motives of the corporation in acquiring its Southern rival, its legal status was not affected by that purchase.

A surprising witness was Judge Gary, chairman of the executive committee of the corporation. He similarly defended the action of his company in taking over the Tennessee Coal and Iron Company in 1907. He would not admit that his company fixed the prices of steel products. He denied that the so-called Gary dinners, where representatives of different steel companies met representatives of the trust, resulted in any tacit agreement to maintain uniform prices. On the subject of federal control Judge Gary took an extreme position. He declared himself in favor of a governmental bureau to which he could explain the condition of business and ask what methods and prices were allowable.

Part of Chairman Gary's testimony was contradicted by the testimony of A. L. Lukens, president of an independent company, who said that at the aforesaid dinners Judge Gary had read lists of prices which his corporation was to maintain, the other companies tacitly agreeing to accept them. Other testimony seemed to show that the corporation allowed a rebate of three dollars per ton to the International Harvester Company. It was said that this fact had been disclosed to former Attorney-General Bonaparte in 1908 in a special report on this company. There was in addition to the above much evidence presented tending to show that the bankers and brokers carrying the stock of the Tennessee Coal and Iron Company in 1908, being in danger of failure, appealed to the capitalists interested in the corporation for relief through the purchase of that stock. The chairman of the committee introduced a copy of a combination agreement fixing the prices and dividing the sales of steel plates. This agreement was signed by eleven companies who maintained such a pool from 1900 to 1903.

INTERNATIONAL STEEL ASSOCIATION. This association was formed in Brussels in July. It was the direct result of a proposal made by Judge Gary at a dinner given to European ironmasters attending the American Iron and Steel Institute. The object of this international association is to extend friendly relation among steel producers of the world with a view to steadying prices. It was declared by some students of industrial conditions that Judge Gary's real object in bringing about such an international understanding was to ward off any severe competition in this country which might result from the removal of the import duties on steel products.

FEDERAL SUIT. On October 26, 1911, the government began suit in the United States Circuit Court at Trenton, N. J., for the dissolution of the steel corporation, its constituents, and all subsidiaries, as a combination in restraint of trade. Not only the steel corporation and its 17 leading constituent companies and 20 subsidiaries, but also 18 individuals, including Morgan, Rockefeller, Carnegie, Gary, Perkins, Schwab, and Frick, were included in the indictment. The government's petition stated in detail the official view of the acquisition of the Tennessee Coal and Iron Company, during the panic of 1907. The petition declared that ex-President Roosevelt was misled at that time; that he had no opportunity of knowing that the desire to stop the panic was in all probability

subordinate to the desire to increase the control of the steel business. The dinners given by Judge Gary to representatives of different steel companies were also cited as evidence of collusion to maintain prices. The petition also laid stress upon the interlacing system of directorates, believing those in the control of the steel industry also controlled great banking and railway interests. This suit differs radically from those against the Tobacco and Oil combinations, since no charges of unfair business methods are made. Moreover, the court's decisions in those cases definitely established the principle that mere size is no ground for prosecution. The real issue thus hinged on the question whether the alleged stock-jobbing methods by which the Tennessee Company was acquired and oral agreements as to prices constituted violations to the Sherman act. Following the initiation of this suit, Judge Gary published a statement on October 27 in which he declared that the corporation had been fair in its business methods and that the suit would establish the following points: That in the organization of the corporation there was no intention of forming a monopoly or restraining trade; that no monopoly or restraint had yet been attempted; that the existence of the corporation had been of benefit to its employees, its customers, its competitors, and the general public; and that no misrepresentation was made to Mr. Roosevelt relative to the purchase of the Tennessee properties, the motive of that purchase being to prevent a threatened general financial disaster.

LABOR CONDITIONS IN THE CORPORATION'S PLANTS. *The Cabot Episode.* In 1910 a movement was begun by Mr. Charles M. Cabot of Boston to secure an investigation of labor conditions in the plants of the corporation. His demand was based on the results of the Pittsburgh Survey. Mr. John A. Fitch, who wrote up those results in part in the *Steel Workers* (N. Y., 1910), summarized labor conditions thus: "A daily and weekly schedule of hours both shockingly long; a system of speeding up, which adds overstrain to overtime; and, crowning all, a system of repression that stifles initiative and destroys healthful citizenship." Mr. Cabot thought the corporations had gone too far in stamping out every vestige of organization among the workers. He desired an inquiry into wages, hours per day and per week, rate-making, unionism, the spy system, and all other elements entering into the relations between the company and its workers. Mr. Gary declared that the corporation welcomed criticism and profited by it. He, therefore, permitted an investigation by a stockholders' committee to be authorized in April. Meanwhile, Mr. Cabot sought to get a mailing list of at least 15,000 stockholders, to whom he wished to send copies of an article by Mr. Fitch in the *American Magazine* for March. This article was not deemed fair by the officers of the corporation, and Mr. Cabot thought the corporations had gone too far a writ of mandamus from a New York Supreme Court justice compelling the corporation to permit him to transcribe a mailing list. From this the corporation appealed, and final decision was not expected before May, 1912.

Welfare Work. At a meeting in July of the American Iron and Steel Institute, one of the avowed principles of which is to enable members "to coöperate along certain lines of welfare work," a tentative plan for the elimina-

tion of the seven-day week was presented. A committee on welfare work was appointed. It at once employed Dr. Thomas Darlington, for six years health commissioner of New York City, as the principal director of such work. The committee, with the apparently sincere support of the managers of various steel companies, plans to better housing conditions, sanitation, education, relaxation, amusements, and health for its employees. The trust has been one of the foremost corporations in the country in the introduction of safety devices, voluntary workmen's compensation, and a pension system for aged employees. In December, 1911, it distributed \$1,450,000 in bonuses for meritorious service to employees.

REPORT OF THE SECRETARY OF COMMERCE AND LABOR. On August 1 the secretary of commerce and labor transmitted to the Senate the first volume of a report on *Conditions of Employment in the Iron and Steel Industries in the United States*, entitled *Wages and Hours of Labor*. This was the result of an inquiry made under a Senate resolution of June 24, 1910. The report covered 344 plants, or practically all in the country. Not all workers, however, were included, but only those connected with fundamental productive operations, or 90,564 employees. Though not applying to the United States Steel Corporation in particular, the data are fairly typical of its conditions. The report showed that 49.7 per cent. of these men worked 72 hours per week; that 31.2 per cent. worked more than 72 hours per week; and that 24.6 per cent. worked 84 hours per week; or 12 hours per day for seven days. It stated that 90 per cent. of the 25,000 men in the blast furnaces worked seven days a week. About three-fourths of the men worked more than 60 hours a week; 10.8 per cent. worked just 60 hours per week; leaving only 15.8 per cent. who worked fewer than 60 hours. It pointed out that in thousands of cases the workers spend three-fourths of their waking hours in the mill, a condition of greatest significance for them and their families. It showed, moreover, that the tendency elsewhere is for a reduction of hours; that the ten-hour day has become general, and that in many cases the eight-hour day is established. It is a striking contrast, therefore, that in the basic industry of the country about one-half of the employees work 72 hours or more a week. The report condemned these long days and long weeks as unnecessary, and as being maintained for commercial reasons only. It especially condemned the system whereby in changing from the night to the day shift men work 24 hours continuously in many cases, and 18 hours continuously in others. It showed that in the blast furnaces, where for metallurgical reasons the plants must be run continuously, a distribution of working hours may easily be instituted whereby every man can have one day's rest out of seven. It declared, also, that much unnecessary Sunday work could be cut out without any appreciable loss or inconvenience. In this connection it mentioned the fact that the American Iron and Steel Institute had formulated such a plan and was at that time trying it in a few plants.

With reference to wages, the report first laid great stress on the large numbers of recent immigrants employed. It found that in all occupations in the industry nearly 60 per cent. of the employees are foreign-born, and nearly

two-thirds of the foreign-born are of the Slavic races. About one-half of the employees investigated were unskilled workmen; and in the blast furnace department more than two-thirds were unskilled, a considerable majority being unable to speak or understand English. Moreover, the investigation showed that there is a tendency toward the steady reduction in the number of highly skilled men employed. The wages were distributed as follows: 9.36 per cent. of the men earned less than 14c per hour; 12.01 per cent. earned 14c, but under 16c; 28.18 per cent. earned 16c, but under 18c; 25.36 per cent. earned 18c, but under 25c per hour; and 25.07 earned 25c or over. Those earning 50c and over per hour numbered 3915, or 4.32 per cent. of all. Those earning less than 18c per hour were classed as unskilled; those earning 18c, but under 25c per hour as semi-skilled; and those earning 25c and over as skilled workers.

UNIVERSALISTS. A Protestant religious denomination, first established in the United States at Gloucester, Mass., in 1799. Its most distinctive tenet is the final salvation of all men. According to the official statistics of the denomination there were in 1911 about 55,000 communicants, 904 parishes, and 689 ministers. The Sunday schools had a membership in that

year of about 50,000. The value of the church property was \$11,384,395. The permanent funds of the general convention amounted to \$401,800. The denomination carries on foreign missions in Japan and Cuba and sustains domestic missions in 15 States. Its educational institutions include Tufts College at Medford, Mass., St. Lawrence University at Canton, N. Y., Buchtel College at Akron, O., and Lombard College at Galesburg, Ill. It has also among its educational foundations Dean Academy at Franklin, Mass., Goddard Academy at Barre, Vt., and Westbrook Seminary, near Portland, Me. The next session of the general convention of the denomination will be held in Chicago, Ill., in October, 1913.

UNIVERSITIES AND COLLEGES. ATTENDANCE. Almost all of the educational institutions of the country report a largely increased attendance, although the gain in numbers is not generally so great as in 1909 and 1910. The registration at the leading universities of the United States for November 1, 1911, and in preceding years, as reported by Prof. Rudolph Tombo, Jr., of Columbia (*Science*, January 5, 1912) is given in the accompanying table:

	Total attendance Nov. 1, 1911	Attend. summer session, 1911	Grand total	Deduct sum- mer stu- dents *	Net total, Nov. 1, 1911	Total, Nov. 1, 1910	Total, Nov. 1, 1908	Total, Nov. 1, 1903
California	4051	1964	6015	291	5724	4758	3751	2690
Chicago	2666	3248	5914	524	5390	5883	5114	4146
Columbia	5669	2973	8642	704	7938	7411	5675	4567
Cornell	4889	1152	6041	432	5609	5169	4700	3438
Harvard (incl. Radcliffe)	4724	787	5511	85	5426	5329	5342	6013
Illinois	4570	647	5217	288	4929	4659	4400	3239
Indiana	1350	1068	2418	264	2154	2132	2113	1143
Iowa	1772	309	2081	114	1967	1957	2356	1260
Johns Hopkins	740	335	1075	18	1057	784	698	694
Kansas	2019	429	2448	193	2265	2246	2086	1319
Michigan	4783	1194	5977	525	5452	5339	5188	3926
Minnesota	4307	476	4783	235	4548	4972	4607	3550
Missouri	2273	507	2780	184	2596	2678	2558	1540
Nebraska	2474	403	2877	144	2733	3661	3154	2513
New York	3688	490	4178	123	4055	3947	3951	2177
Northwestern	3387	94	3481	43	3438	3543	3113	2740
Ohio State	3085	792	3877	310	3567	3181	2700	1710
Pennsylvania	4718	682	5400	180	5220	5187	4655	2644
Princeton	1543	....	1543	....	1543	1451	1314	1434
Stanford	1634	50	1684	86	1648	1648	1541	1370
Syracuse	3183	225	3408	101	3307	3248	3204	2207
Texas	1935	734	2669	130	2539	2597	1446	785
Tulane	1192	936	2128	88	2040	1985	1171	1037
Virginia	804	....	804	....	804	688	757	638
Western Reserve	1331	....	1331	....	1331	1274	1016	765
Wisconsin	3956	1536	5492	477	5015	4745	3876	3221
Yale	3224	....	3224	....	3224	3287	3466	2990

* Summer session students who returned in the autumn.

The apparent decrease in the case of Minnesota and Nebraska is due to a change in classification. The fall enrollment at some of the prominent colleges for men and for women and schools of technology is given below:

	1911	1910	1904
Amherst	464	502	412
Brown	933	930	988
Bryn Mawr	440	409	441
Dartmouth	1,385	1,229	926
Haverford	164	150	146
Lehigh	599	616	609
Mass. Inst. of Technology	1,610	1,506	1,561
Mount Holyoke	771	743	674
Purdue	1,762	1,611	1,359
Smith	1,508	1,618	1,067
Wellesley	1,433	1,378	1,050
Wesleyan	395	365	305
Williams	533	541	443

The aggregate enrollment of students in the 602 universities, colleges, and technical schools

reporting to the United States Commissioner of Education for the year ending June, 1910, was 301,818, including all departments, preparatory, collegiate, graduate, and professional. States or municipalities control 89 of these institutions, and 513 are controlled by private corporations. The 89 public institutions had an enrollment of 64,216 students in their collegiate departments, and 3410 in their graduate departments, making a total of 67,626, of whom 49,919 were men and 17,707 were women. The 513 private institutions enrolled 65,582 men and 44,415 women in their collegiate departments and 5081 men and 2008 women in their graduate departments, making a total of 117,086. Of the 602 institutions of higher education 142 are for men only, 108 for women only, and 352 for both sexes. The 108 colleges for women employed 2612 teachers, 648 men, and 1964 women. The remaining 494 institutions employed 24,667 teachers for all de-

partments, 21,813 men and 2854 women. The collegiate students of the 494 colleges, universities, and technical schools for both sexes and for men only numbered 153,866, distributed by departments, so far as reported, as follows: 44,849 students in the classical course, 11,163 in general science, 7372 in agriculture, 30,337 in engineering, 6963 in education, 4321 in commercial departments, 1934 in household economy, 8217 in music, and 2182 in art. The total number of degrees conferred in 1910 by the 602 universities, colleges, and technical schools reporting was, excluding honorary degrees, 17,187 on men and 8022 on women. The numbers receiving the more important degrees are as follows: Bachelor of arts, 7043 men, 5557 women; bachelor of science, 5014 men, 779 women; bachelor of philosophy, 841 men, 524 women; bachelor of letters, 428 men, 452 women; bachelor of mechanical engineering, 21 men; bachelor of electrical engineering, 23 men; bachelor of engineering, 104 men; bachelor of architecture, 30 men, 2 women; bachelor of scientific agriculture, 147 men, 3 women; bachelor of music, 8 men, 52 women; bachelor of pedagogy, 39 men, 39 women; master of arts, 1172 men, 465 women; master of letters, 278 men, 39 women; mechanical engineer, 502 men; civil engineer, 586 men; electrical engineer, 235 men; engineer of mines, 208 men; doctor of philosophy, 362 men, 44 women; doctor of business administration, 8 men.

Comparative statistics of the professional schools of the United States for each decade since 1870 are given in the accompanying table:

	1910	1900	1890	1880	1870
Theology:					
Schools	184	154	145	142	80
Students	11,012	8,009	7,013	5,242	3,254
Graduates	1,759	1,773	1,372	719	.....
Law:					
Schools	114	96	54	48	28
Students	19,567	12,516	4,518	3,134	1,653
Graduates	4,238	3,241	1,424	1,089	.....
Medicine (all classes):					
Schools	135	151	129	90	.....
Students	21,394	25,213	15,494	11,929	6,194
Graduates	4,448	5,219	4,556	3,241	.....
Medicine (regular):					
Schools	112	121	93	72	.....
Students	19,983	22,752	13,521	9,876	5,670
Graduates	4,129	4,720	3,853	2,673	.....
Medicine (homœopathic):					
Schools	14	22	14	12	.....
Students	897	1,909	1,164	1,220	275
Graduates	184	413	389	380	.....
Dentistry:					
Schools	53	54	27	16	.....
Students	6,489	7,923	2,696	730	257
Graduates	1,588	2,029	943	266	.....
Pharmacy:					
Schools	79	53	30	14	.....
Students	6,226	4,042	2,871	1,847	512
Graduates	1,715	1,130	759	186	.....
Veterinary medicine:					
Schools	20	13	7	.....	.....
Students	2,717	362	468	.....	.....
Graduates	769	100	.....	.....	.....

Of the 11,012 students in theology 491 are women, and of the 19,567 law students 205 are women.

RESOURCES. The 494 universities, colleges, and technological schools, exclusive of colleges for women only, reported for 1910 productive funds aggregating \$259,376,878; scientific apparatus, machinery, and furniture, valued at \$32,747,424; livestock, \$780,246; buildings, \$211,440,008; grounds, \$67,688,727; libraries of 11,059,180 volumes, valued at \$19,246,218. The receipts for the year 1909-10 aggregated \$80,-

438,987, chiefly from the following sources: \$14,687,192 from fees, \$11,592,113 from productive funds, \$19,720,899 from State or city, \$4,607,298 from the United States government, \$18,737,145 from private benefactions. The 16 leading colleges for women only reported endowment funds amounting to \$12,888,307; receipts for the year, \$4,845,615; libraries of 394,465 volumes, valued at \$780,838. The 92 other colleges for women only reported endowment funds amounting to \$1,158,143; receipts for the year, \$3,085,132; libraries, 286,526 volumes, \$313,229.

BENEFACTIONS AND APPROPRIATIONS. The financial statistics for 1911 are not yet published by the United States Bureau of Education, but judging from the reports we have received, the aggregate will be greater than last year. The legislatures, with a few exceptions, such as Kansas, have been unusually generous in the support of the State universities and the alumni of endowed institutions, large and small, have been active in raising funds. We can only mention here a few instances, which, for some reasons, are especially noteworthy. The Illinois legislature broke all records by passing a bill appropriating the sum of \$3,519,300 for the biennium, beginning July 1, 1911. The most interesting items in this bill are: Maintenance of the College of Agriculture and Agricultural Experiment Station, \$799,300; maintenance of College of Engineering and Engineering Experiment Station, \$180,000; Graduate School, \$100,000; social and political sciences, \$50,000; ceramics, \$30,000; books for library, \$50,000. With the funds received from the United States government for agricultural education and research and the fees from students, the income of the University of Illinois for the next two years will be about \$2,000,000 per annum. After that the University of Illinois will, by action of the same legislature, receive as its permanent support, a one mill tax, which is calculated to yield about \$2,250,000 a year, the equivalent of an endowment of \$45,000,000, at 5 per cent. The University of Michigan has a three-eighths mill tax, which, as a result of the increase in the valuation of property in the State, will yield an annual income of \$858,000, instead of \$650,000, as formerly. The legislature of Massachusetts has passed a bill appropriating \$100,000 a year for ten years to the Massachusetts Institute of Technology for running expenses, the institute giving in return 80 scholarships. The institute will also receive \$500,000 from T. Coleman du Pont, '84, for buying land on the new site, about the same from the bequest of Mrs. Emma Rogers, widow of William Barton Rogers, founder of the institute, and \$600,000 from the Francis B. Greene fund. Bryn Mawr received a bequest of \$750,000 from Miss Emma Carola Woerishoeffer, '07; and \$150,000 for a school of education, with a practice school. The gifts to Columbia University during the year aggregate nearly \$3,000,000. During the ten years of President Butler's administration Columbia has received gifts amounting to \$16,551,568.74. Western Reserve has completed the million-dollar special endowment for the medical school. To this fund John D. Rockefeller and H. M. Hanna each contributed \$250,000. De Pauw University has raised \$440,000 for endowment to meet the conditional gift of \$100,000 from the general education board. Oberlin College has raised a half-million-dollar fund with the aid of \$125,000 from the general

education board. Half of the fund will be spent for buildings and the other half will be put into endowment. The total assets of Oberlin have been raised in ten years from less than two million to more than four. Brown University is raising a million-dollar fund, of which over half has been subscribed, including \$150,000 from the general education board. Harvard has received during the year \$1,300,000 from various donors. Ohio Wesleyan has additional endowment pledged to the amount of half a million. Vanderbilt has received \$150,000 from the general education board for endowment and the same sum from W. K. Vanderbilt for the medical department. The Oregon legislature authorized a special appropriation of \$500,000 to the State University for new buildings and equipment, but the appropriation was held up by referendum petitions. The university has brought suit to declare the petitions void on account of wholesale frauds and forgeries in the signatures. Boston University has increased the general endowment by \$400,000, and made a \$250,000 addition to the hospital facilities of the medical school. Dartmouth College reports the Edward Tuck gift of \$400,000 to raise the salaries of the faculty. De Pauw has raised an endowment of \$400,000, of which one-quarter comes from the general education board. Johns Hopkins University has raised \$750,000 to meet the conditional gift of \$250,000 from the general education board. The University of California received from Mrs. Jane K. Sather \$200,000 for a campanile, \$23,000 for chimes, and \$200,000 for the endowment of chairs of history and classics. Vassar College received from Mrs. Russell Sage \$225,000 for the erection of the Olivia Josselyn hall of residence. Morton F. Plant, of New London, Conn., has offered a million dollars to found at that place the Connecticut College for Women.

CARNEGIE FOUNDATION. The Carnegie Foundation for the Advancement of Teaching paid out during the fiscal year 1909-10 to the 71 accepted institutions for retiring allowances and pensions, \$325,199.02, and to individuals in institutions not on the accepted list \$144,635.28. Four additional institutions were admitted to the privileges of the Foundation: The University of California, Indiana University, and Purdue University as component parts of a single State University, and Wesleyan University.

DOCTOR'S DEGREES. The extent of the graduate work being done in different universities and in different fields of research may be measured by the number of doctorates conferred since this degree is fairly well standardized, although the requirements for it are by no means equivalent, even in the same institution. It is now rarely used as an honorary degree, and the smaller universities generally refrain from giving it except where the opportunities of research in some department are such as to justify it. The accompanying table, published in *Science*, August 18, 1911, summarizes the doctorates of the past 14 years:

	Average					Total
	1898-1907	1908	1909	1910	1911	
Columbia	32.2	55	59	44	75	555
Chicago	35.6	54	38	42	55	545
Harvard	33.8	42	38	35	42	495
Yale	31.8	32	44	27	31	452

	Average (Cont.)					Total
	1898-1907	1908	1909	1910	1911	
Johns Hopkins..	30.5	28	27	23	28	411
Pennsylvania ...	22.5	32	29	26	29	341
Cornell	18.1	22	34	35	34	306
Wisconsin	8.6	17	16	18	15	152
Clark	8.7	11	9	14	16	137
New York	6.7	15	13	11	17	123
Michigan	6.9	4	13	7	6	99
Boston	4.4	11	13	6	13	87
California	3.3	4	10	6	6	59
Princeton	2.6	6	4	8	9	53
Geo. Washington	2.8	3	4	4	5	44
Virginia	2.8	4	1	4	2	39
Bryn Mawr	2.1	4	2	5	5	37
Illinois	5.5	5	4	12	11	37
Minnesota	2.4	3	5	1	2	35
Brown	2.3	2	5	1	4	35
Catholic	2.0	1	3	3	5	32
Stanford	1.4	2	3	5	4	28
Nebraska	2.0	2	2	1	0	25
Iowa	1.1	2	0	4	3	20
Cincinnati	3	0	2	2	5	12
Massachusetts In.	3	3	0	3	2	11
Missouri	4	3	0	2	2	11
Georgetown	1.0	0	0	0	0	10
Vanderbilt	6	1	1	2	0	10
Washington	7	1	0	0	2	10
Indiana	0	3	3	0	2	8
Ohio	4	0	2	0	2	8
Pittsburgh	1	4	0	2	1	8
Kansas	3	0	0	3	1	7
Syracuse	2	0	2	1	2	7
Colorado	5	0	1	0	0	6
North Carolina ..	5	0	1	0	0	6
Northwestern	4	0	1	0	1	6
Tufts	5	0	0	1	0	6
Wash. and Lee	4	1	0	0	0	5
Lafayette	3	0	0	0	0	3
Dartmouth	1	1	0	0	0	2
Lehigh	2	0	0	0	0	2
Tulane	1	0	0	0	0	1
Total	272.4	378	389	358	437	4286

To these should be added about 50 Americans, who annually receive the degree of doctor of philosophy or its equivalent abroad. It is estimated that about three-fourths of those who receive the doctor's degree in science continue afterwards to do scientific work. The following table, giving the number of doctorates conferred in the various departments of graduate work, show the rapid increase in the natural and exact sciences, especially chemistry, which has twice the number of any other subject. The popularity of chemistry is due in part to the fact that it offers a double opportunity for employment, in industrial as well as educational work.

	Average					Total
	1898-1907	1908	1909	1910	1911	
Chemistry	32.3	54	43	48	65	533
Physics	15.5	22	25	25	37	264
Zoology	15.2	25	18	24	25	244
Psychology	13.5	23	21	20	23	222
Mathematics	12.1	23	14	23	25	206
Botany	12.6	11	16	10	20	183
Geology	7.1	5	13	10	15	114
Physiology	4.1	7	13	4	2	67
Astronomy	3.4	1	7	3	4	49
Agriculture	1.0	2	7	4	11	34
Bacteriology	1.4	1	5	1	4	25
Anthropology	1.0	4	4	2	2	22
Paleontology	1.6	1	0	2	0	19
Anatomy .....	.9	2	0	1	1	13
Pathology .....	.5	2	3	1	1	12
Engineering .....	.8	0	0	1	2	11
Mineralogy .....	.6	0	3	0	1	10
Metallurgy .....	.3	0	1	0	0	4
Geography .....	.1	1	1	0	1	4
Meteorology .....	.1	0	0	0	0	1
Total	124.1	184	194	179	239	2037

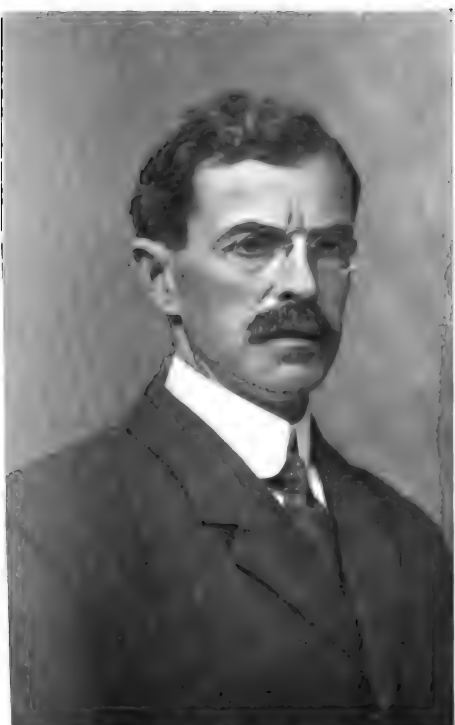
	1908	1909	1910	1911	Total
English	30	27	31	33	121
History	32	22	25	26	105
Philosophy	25	14	19	26	84
Economics	17	42	7	16	82
German	14	14	16	7	51
Education	6	9	13	23	51
Latin	12	12	15	11	50
Romance	12	16	6	12	46
Sociology	6	6	14	18	44
Oriental	9	16	11	1	36
Greek	13	11	5	7	36
Political Science	9	4	9	6	28
Theology	7	2	1	7	17
Philology and Compara- tive Literature	0	1	5	1	7
Law	1	0	1	2	4
Music	1	0	1	1	3
Classical Archaeology ..	0	0	0	1	1
Total	194	195	179	198	766

NEW PRESIDENTS. The following institutions elected or inaugurated new presidents during the year 1911: New York University, Elmer Ellsworth Brown, United States Commissioner of Education since 1906, succeeding Chancellor MacCracken. University of Minnesota, George Edgar Vincent, of the University of Chicago, succeeding Cyrus Northrop. University of Vermont, Guy Potter Benton, president of Miami University, succeeding Matthew H. Buckham. Iowa State University, John Gabbert Bowman, secretary of the Carnegie Foundation, succeeding George E. Maclean. University of West Virginia, Thomas Edward Hodges, professor of physics at West Virginia, succeeding Daniel Boardman Purinton. Boston University, Lemuel Herbert Murlin, president of Baker University, Kansas. Wellesley College, Miss Ellen Fitz Pendleton, dean of the college. University of Arizona, Arthur H. Wilde, professor of history in Northwestern University. Wilson College, Miss Anna J. McKeag, head of the educational department of Wellesley. Dickinson College, Eugene Allen Noble, president of Goucher College, succeeding George E. Reed. William Trufant Foster, professor of education at Bowdoin, has been selected as the first president of Reed College, established at Portland, Ore., on the endowment of \$3,000,000 bequeathed by the late Mrs. Amanda Reed. No successor has yet been selected for President George Harris, of Amherst, who resigned at the age of 68, after 13 years' service in the presidency.

NEW BUILDINGS. The graduate college of Princeton University, as planned by Dean Andrew F. West, is now in course of construction, and it is expected to be completed by the spring of 1913. The group consists of the Cleveland Memorial Tower; Procter Hall, containing the large dining hall; Thompson College, the quadrangle, with suites of rooms for 81 students; South Tower, and Wyman House, the residence of the dean. Cornell is spending more than a million dollars on new buildings, among them one for the department of domestic science, costing \$154,000, and containing a lunch room, where over a thousand persons may be served; an auditorium costing \$138,000; a veterinary hospital, costing \$140,000; a building for poultry husbandry, costing \$90,000; and Prudence Risley Hall for women, for which Mrs. Russell Sage has donated \$300,000. Yale is carrying out the largest building programme of any year in its history, except, perhaps, the bi-centennial year, involving the expenditure of about \$1,500,000 in land and construction, and comprising

laboratories, dormitories, and the Day Memorial Library of the Divinity School. Columbia has under construction a building for the architectural school and Avery library. Plans for the Germanic Museum of Harvard have been prepared by Professor Bestelmeyer of Dresden. Adolphus Busch of St. Louis has contributed \$250,000 toward its construction. The Harvard Medical School is attracting to the Fenway region a remarkable group of allied institutions for the study and treatment of disease. Besides the five stately buildings forming the original group, there are either completed or under construction the Harvard Dental School and Infirmary, the Huntington Memorial Hospital for cancer patients, the Infants' Hospital, the Children's Hospital, the Peter Bent Bingham Hospital, with 14 buildings, the House of the Good Samaritan for women suffering from chronic diseases, the Carnegie Nutrition Laboratory, the Psychopathic Hospital, and several others. Altogether, the buildings will represent a cost of between seven and eight millions. Harvard University is planning for a new library to replace Gore Hall, and shelve 2,400,000 volumes, at a cost of two million dollars. The Harper Memorial Library, which constitutes the central structure of the Midway Plaisance façade of the University of Chicago, is now approaching completion. Nine new buildings are being erected at the University of Wisconsin, among them a women's dormitory, a model high school, and buildings for home economics and extension work, for agricultural chemistry, and for biology, the whole to cost nearly a million dollars. The University of Pennsylvania has dedicated a large zoölogical laboratory, containing 97 rooms, admirably arranged for experimental research, with salt and fresh water aquaria and breeding-rooms insulated for maintaining any desired temperature. The University of Texas has completed a library at a cost of \$250,000. The style of architecture, Spanish renaissance, will be followed in future buildings on the Texas campus. At Brown University the John Hay library, costing \$300,000, has been dedicated. The University of Illinois named after Lincoln its new building for modern languages and political science, costing \$250,000. The University of Iowa has erected a hall of physics at a cost of \$225,000. With a bequest of \$230,000 from the late regent, Arthur Hill, the University of Michigan will erect an auditorium seating 5000. The Catholic University of America has laid the cornerstone of the Gibbons Memorial Hall, a residence for 130 lay students, to cost \$250,000. The University of California has added two new buildings to the permanent architectural group; the library made possible through the bequest of Charles Franklin Doe of \$664,000, and the Boalt Hall of Law, for which Mrs. Elizabeth H. Boalt contributed \$100,000, and the bench and bar of California \$50,000. Ohio State University has under construction a library costing \$250,000, and a building for the State Archaeological and Historical Association, costing \$100,000. The new Ohio Union, a clubhouse for students, costing \$100,000, is now in use.

ENTRANCE REQUIREMENTS. The question of the best method of admission to college has long been the subject of earnest discussion and this year some of the leading universities have made important changes in policy on this point. The certificate system which places the responsibility for determining the fitness of the candidate for



Photograph by McManus

JOHN GRIER HIBBEN
Princeton University



GEORGE E. VINCENT
University of Minnesota



ELMER ELLSWORTH BROWN
New York University



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ELLEN F. PENDLETON
Wellesley College

FOUR UNIVERSITY OR COLLEGE PRESIDENTS

college work primarily upon the school that prepared him for it, was introduced by the University of Michigan 40 years ago and was gradually adopted throughout the West by private as well as State institutions, and now prevails in some degree almost everywhere. Four of the most important universities have hitherto stood out against the certificate system and insisted upon examinations for entrance: Harvard, Columbia, Yale, and Princeton. In June, 1911, Harvard put into effect a new alternative plan which reduces the number of examinations to four and takes into consideration the school record, as well as the results of these examinations. The candidate for admission to Harvard under this plan must present an official detailed statement showing that he has pursued in a satisfactory way an approved course of four years, concerned chiefly with languages, science, mathematics, and history, no one of which has been omitted and two of which must have been pursued beyond their elementary stages. He must also pass examinations in four subjects as follows: (1) English; (2) Latin, or for S. B., French or German; (3), mathematics, or physics, or chemistry, and (4) any subject of the following, not already selected: Greek, French, German, history, mathematics, physics, chemistry.

The four examinations must be taken at one time, either in June or September. The examinations will be adapted to various methods of teaching and contain questions sufficient in number and character to permit each student to reveal the full amount and quality of his attainment. The school record will always be considered in connection with the examinations, and the candidate will be either admitted without conditions or rejected. One object of the new scheme was to free Harvard from dependence upon private fitting schools, by enabling the graduates of the public high schools, especially in the West, to enter the university. That it is going to accomplish this object and does not involve a lowering of standards, was shown by the results of the first examinations. Of 206 applicants for admission under the new plan, 66 were refused admission upon their school record. Of those allowed to try, 57 were rejected and 83 admitted. In other words, a larger number of candidates was refused admission than under the old plan. Under the old plan 84.9 per cent. of the candidates came from the New England States, 8.5 per cent. from other Atlantic States, and but 4.5 per cent. from the Western States. Under the new plan 47 per cent. came from New England, 41.5 from other Atlantic States, and 21.5 per cent. from west of the Alleghenies. Under the old plan about 54 per cent. of Harvard's students came from private fitting schools, 45 per cent. from public high schools. Under the new plan 83.5 per cent. came from public high schools, and 15.5 per cent. from the private schools. This means a gain in quality because the public schools are turning out better men than the private schools, as is shown by the award of scholarships in Harvard College for 1911-12. Of the scholarships given to students because of the excellence of their work in the last academic year, 117 went to men from the public schools and 39 to those from private schools, that is, the public school men, though fewer than the private school men, obtained three times the honors.

This modification of the Harvard entrance requirements is regarded by the Yale authorities

as a dangerous plan and a step in the direction of the general certificate system. Some of the Western alumni of that university have urged concessions to the certificate system, but without success. The Sheffield Scientific School of Yale has dropped Latin from its requirements and reduced the number of required units in modern languages, history, and science. Columbia has appointed an official to examine the school records and personal qualifications of candidates, so that the question of their fitness for admission shall not depend entirely upon their examination papers. The trustees of Princeton have appointed a committee to consider modifications of its entrance examination system.

The new Harvard plan, although it specifies only four subjects, does not satisfy the demand of the high school for complete control of its curriculum, for to meet the requirements of the university about seven-eighths of the student's work is still prescribed, and the new technical high schools, now being established in many places, could not send their graduates to Harvard. The University of Chicago has gone further than any other of the great universities in concessions to high school autonomy by the admission plan adopted this year. Chicago requires three units of English; three units from some one group of subjects—languages, or mathematics, or history, or science; two units from another of these groups; two units of any combination within the four groups—as, for example, one of history, and one of science. The other five units are elective—what the school offers the university will take, and take without examination. No students will be admitted on conditions. Whether a high school remains upon the accredited list will depend chiefly upon the record of its graduates in the university. The relation between high school and university is made reciprocal. A report of the student's work is sent back to the high school and the principal and teachers are invited to inspect and criticise those university classes which continue high school subjects.

CHANGES IN ORGANIZATION. The universities and colleges of the United States have come in for much sharp criticism in recent years on the ground that they were not making the best possible use of the vast funds now being placed at their disposal. The Carnegie Foundation for the Advancement of Teaching in its bulletin, No. 5, issued in 1910, compared "Academic and Industrial Efficiency," much to the disadvantage of the former, and urged the adoption of modern business methods in the administration of university affairs. This outside criticism has been generally resented by university authorities, who hold that to treat an educational institution like a shop or factory would be to destroy, rather than to improve, its real "efficiency." Nevertheless, it is recognized that in many cases the simple and informal modes of procedure of earlier days have been allowed to remain long after they have become inadequate to the great universities of the present time. Several institutions have started a systematic overhauling of their machinery with a view of discovering "lost motion" and "waste of material." A special committee of Oberlin College has for three years been studying the problem and has prepared an elaborate scheme for testing college efficiency in all departments and phases of its work and influence. The recom-

mendations of the committee have already effected improvements in the standards of work and the forms of administration. The University of Illinois is engaged in drafting a constitution or charter for a State university, to settle such questions as centralization of authority, college autonomy, the source of power, origin of legislation, and individual freedom.

The colleges of Virginia are to be standardized according to the accepted definitions by the State Board of Education and inspected once a year. The Cornell College of Agriculture has been placed under the immediate supervision of a special committee of eleven persons known as the Agricultural College Council, instead of the executive committee of the board of trustees as formerly. Trinity College has appointed a joint committee composed of representatives of trustees, faculty, and public to consider the "larger questions of university administration." Ohio State universities and the University of Michigan have reorganized and enlarged their graduate schools.

To provide for the vocational courses that have developed in Teachers College of Columbia University a school of practical arts has been organized under a faculty distinct from the educational faculty of Teachers College. The subjects of instruction will include household and institutional management, dietetics and cookery, costume design and decoration, nursing and sanitation, wood and metal working, art industries and music. The purpose of this new school will be to give vocational training of collegiate grade and character to those students, both men and women, who do not wish to take a regular college course or to prepare themselves for one of the professions for which a college education is necessary.

NEW DEPARTMENTS. It would be impossible to mention here the numerous schools, departments, and chairs that are being added to meet the educational demands of our complex modern life, but a few items will serve to show the principal lines of development. The University of Michigan has created departments of fine arts and of engineering mechanics and has undertaken extension work on a large scale, providing a list of 300 lectures for the people of Michigan. Harvard and Michigan have established the degree of doctor of public health. The degree of associate in arts is to be given by Harvard University to students who have taken work in the summer school, extension courses and Radcliffe College equivalent in number to those required for the degree of A. B. Neither an entrance examination nor residence at the university is required for the degree of A. A. Northwestern University has received \$250,000 for research in the medical school. A pathological institute for the investigation of disease has been founded at the University of California by an anonymous gift of \$500,000. The University of Colorado has established a school of pharmacy. The University of Tennessee has moved its medical and dental departments from Knoxville to Memphis, and will add a school of pharmacy there. Washington University, St. Louis, has reorganized its medical school with full-time professors and has affiliated Barnes Hospital and the St. Louis Children's Hospital. The University of Washington, Seattle, has obtained \$30,000 for a bureau of child welfare. Bryn Mawr is to have an experimental high school

in connection with its graduate school of education. Jacob H. Schiff has given \$100,000 to Cornell for the promotion of studies in German culture. The New York legislature has established a State college of forestry at Syracuse University and appropriated \$55,000 for it. The legislature a few years ago refused State support to the Cornell College of Forestry, but work in that field has been reopened by the establishment of a department of forestry in the State College of Agriculture of Cornell University. Governor Dix vetoed a bill appropriating \$10,000 for establishing a State school of sanitary science and public health at Cornell. The Western States are beginning to recognize scholarly research in other than practical lines as a legitimate function of a university. The legislature of Illinois, as already mentioned, makes specific provision for this, and in 1911 the Minnesota legislature appropriated \$5000 a year to be devoted exclusively to research not agricultural.

The University of Missouri has added chairs of preventive medicine, forestry, and poultry husbandry. The Missouri course in forestry includes ten weeks in the Ozark Mountains between the junior and senior year. The University of North Dakota has introduced courses in ceramics and nursing. Oberlin has a new chair of comparative religion. The University of Michigan has arranged a system of coöperation in astronomical research with the University of La Plata, Argentina, according to which Prof. W. J. Hussey becomes director of both observatories and will divide his time between the two institutions. Columbia has introduced graduate courses in highway engineering. Patrick F. McGowan, ex-president of the board of aldermen of New York, has provided funds for the support at Columbia of a laboratory of politics which includes a museum of election ballots. The University of Chicago has formed a travel class to study the "background and environment, physical and human, of modern English literature," under the direction of Prof. W. D. MacClintock in important literary districts of England and Scotland during the winter. Similar classes in "field work" have visited Greece, Rome, and Palestine. The universities are being called upon more often than formerly to investigate problems of manufacture and commerce and of State and municipal administration. The Edison Company of Boston has provided \$3000 for the comparative study of electric, gasoline, and horse trucking at the Massachusetts Institute of Technology. Prof. Robert Kennedy Duncan reports eighteen industrial fellowships in applied science at the universities of Kansas and Pittsburgh, supported by various industries for the discovery of improved processes and the utilization of waste products. The University of Wisconsin has some of its graduate students giving half their time to State work under the insurance, tax, and railroad commissions. The working fellowships carry a salary of \$600. The University of Wisconsin also has a system of teaching fellows who devote alternate semesters to teaching in the high schools of the State and to graduate work at the university.

SCHOOLS OF JOURNALISM. The immense development of periodical literature in this country has given rise to a demand for specific training in journalism and many universities, chiefly in the West, have in recent years made

more or less formal provision for it; but Columbia has now the best opportunity to cultivate this field, for the million dollars which Joseph Pulitzer, editor of the *New York World*, gave to that university in 1904 became available for that purpose at his death. If at the end of three years the school of journalism is in successful operation another million will be added. The donor designated an advisory committee composed of the editors of the leading New York papers and other experts to have general oversight of the school and to provide in his will for numerous scholarships and prizes for literary production. A building of five stories and a basement, measuring 208 feet by 56, is already in the course of erection for the Columbia School of Journalism. The University of Missouri was the first to organize a school of journalism with a distinct faculty and leading to a specific degree, B. S. in J. It is on the same basis as the other professional schools and requires the same attainments for admission, two years of collegiate work. The University of Wisconsin has added to its journalistic courses work in the technique of printing and publishing and in technical and trade journalism, especially agricultural. The following universities also have now departments or courses devoted to journalism: New York, Michigan, Ohio State, Illinois, Kansas, Minnesota, Nebraska, Miami, Oregon, Washington; and Iowa and Massachusetts agricultural colleges. Charles Scribner has given to Princeton University a completely equipped printing plant at a cost of \$125,000.

AIMS AND METHODS. The alumni of Amherst are endeavoring to assist the college in finding its true vocation and place in the educational system of the United States. The class of 1885 at its twenty-fifth reunion presented to the trustees an address on the future development of the college in which it was urged that it was undesirable to attempt to compete with the great universities in technological courses and that the college should confine itself to a definite sphere of collegiate work with the aim of preparing men for public life by a training in cultural studies. The specific recommendations made by the committee of the class were formulated as follows:

1. That the instruction given at Amherst College be a modified classical course.
2. That the degree of bachelor of science be abolished.
3. That the college adopt the deliberate policy of devoting all its means to the indefinite increase of teachers' salaries.
4. That the number of students attending the college be limited.
5. That entrance be permitted only by competitive examination.

The trustees of Amherst received the recommendations favorably and virtually adopted the first three of those given above. With the aid of the alumni a fund was raised to make the salaries of the teachers equal to those paid in any similar institutions. It has not, however, been determined to restrict the number of students. The committee of alumni and educational experts of other colleges appointed by Hamilton College to consider changes in requirements recommended that wider scope be allowed in the choice of subjects for entrance and that Latin and Greek be not required for admission to the A. B. course.

Many universities are raising their requirements for admission to professional schools and for advanced degrees. Columbia University will hereafter require two years of collegiate work for entrance to the engineering courses of four years, thus placing engineering on the same basis as law, medicine, and education. The University of Colorado has raised its law and medical schools to the same requirements. All the professional schools of the University of Missouri except the College of Agriculture will hereafter require two years of college. Oberlin has placed its conservatory of music upon the same basis of entrance requirements as the collegiate departments. New York University will hereafter require for doctor of philosophy and doctor of science a written as well as an oral examination, and three years of resident graduate study, of which one must be spent at the university.

In Yale University the conduct of work for the master of arts degree has been transferred from the faculty of Yale College to that of the Graduate School and regulations for the degree have been made more severe. Hereafter not less than two years of graduate study will be required for the M. A. degree, of which the last year must be spent at New Haven. New rules have been adopted restricting the freedom of elections in Yale College, particularly in the freshman and sophomore years, by means of a group system to insure a better distribution of courses.

Summer schools are advancing rapidly both in numbers and quality of work. Johns Hopkins conducted a summer session of six weeks in 1911, attended by 335 persons, mostly local teachers. Dartmouth has incorporated its summer school as an integral part of its educational system, establishing the same standards and giving equal credit for work done. New York University will hereafter permit all of the work for a master's degree to be done in the summer school. Cornell will permit henceforth two terms of summer work, instead of one as formerly, to count among the eight terms of residence required for the bachelor of arts degree.

The University of Chicago has obtained from its instructors, undergraduates, and alumni a large amount of detailed criticism and results of personal experience bearing on problems of instruction which is summarized in the *University of Chicago Magazine*. It was found that there were some courses requiring little or no preparation, but that these were not always the least valuable. On the other hand, some instructors made "impossible demands upon the students' time." Lectures as the principal means of instruction, particularly for elementary classes, are, in the opinion of the great majority of instructors, alumni, and undergraduates, unwise. Written quizzes are regarded as a fairer way of grading than oral tests. Students should know their grades.

At Harvard an investigation was made to determine the actual cost of instruction in the different departments. It was found that the average cost per student of all courses in the English department was \$31.69, though it varied greatly in the different courses; for example, the cost of the freshman course in English was \$23.25, while Dean Briggs' course in English cost \$97 per student. The average cost per student in certain departments was

found to be as follows: Botany, \$178.96; mathematics, \$53.88; architecture, \$103.93; philosophy, \$48.69; business, \$117.39; classics, \$73.49. Under the new rules restricting the freedom of election at Harvard, freshmen have to choose the department in which they will do their main work (at least six out of sixteen courses). The preferences expressed by the freshmen in May, 1911, were distributed as follows: 23 per cent. will concentrate their work in the departments of language, literature, fine arts, and music, 30 per cent. in the natural sciences, 45 per cent. in history, government, and economics, and 2 per cent. in philosophy and mathematics. There is a marked increase in the election of scientific courses.

COLLEGE GRADUATES. President Lowell of Harvard presents in *The Educational Review* for October some statistics tending to show that success in the work of the professional school depends more on the grade of work done in the college than on the choice of studies. The students who in college took more work than the average in history and political science did not do better in the law school than the others, and the medical students who had taken more science when in college showed no superiority. Of the men who took ten or more courses in science while in college, only 39 per cent. graduated *cum laude* from the medical school, while of the men who took less than three science courses 61 per cent. graduated *cum laude*. Of the 239 men who received no honors in college 36 per cent. were given honors in the medical school; of the 85 with a *cum laude* in college, 76 per cent.; of the 39 with *magna cum laude*, 87 per cent.; and the two who received *summa cum laude* received honors in the medical school. From this, President Lowell concludes, that, "as a preparation for the study of law or medicine, it makes comparatively little difference what subject is mainly pursued in college, but that it makes a great difference with what intensity the subject is pursued—or, to put the same proposition in a more technical form, familiarity with the subject-matter, which can be transferred little if at all, is of small importance in a college education, as compared with mental processes that are capable of being transferred widely, or with the moral qualities of diligence, perseverance, and intensity of application which can be transferred indefinitely."

Unusually complete and accurate statistics of the earning power of graduates in the earlier years of their career were obtained from the reports of the Yale class of 1906, five years after graduation. Two-thirds of the class reported their actual individual earnings, exclusive of inherited wealth and family allowances. The results are tabulated below by year and occupation. The average age of the class of 1906 at graduation was 22 years and 10 months:

Occupation	1st year	2d year	3d year	4th year	5th year
Finance and mercantile *	\$705	\$1,061	\$1,516	\$1,931	\$2,405
Educational and religious workers	1,110	1,085	1,236	1,328	1,514
Farmers, ranchers, foresters ...	893	1,200	1,560	1,471	1,886

* Including advertisers, publishers, bankers, brokers, business men, insurance agents, manufacturers, and real estate dealers.

Occupation (cont.)	1st	2d	3d	4th	5th
Engineers	650	942	1,352	1,287	1,702
Government employees	850	860	1,165	1,575	2,650
Journalists	660	790	821	920	1,169
Lawyers	358	400	609	927	1,245
Musicians	750	1,100	1,450	1,700	1,350
Graduate students	487	542	426	447	370
Average for all occupations	\$740	\$969	\$1,287	\$1,523	\$1,885

RHODES SCHOLARS. In 1911 sixty-nine men completed their three-years' course at Oxford at the expense of the Rhodes Trust and 74 newly elected scholars entered into residence. Of the whole number of scholars and ex-scholars at Oxford 90 came from the United States, 84 from the colonies and 10 from Germany. The preference is for law, 44 entering the school of jurisprudence and 12 for the B. C. L. degree. Next come natural science, 24; history, 18; letters, 18; "Greats," the essentially classical course, 14; medicine and theology, 10 each, and others scattering. Of about 250 of the Rhodes scholars who had left Oxford up to 1910, 84 are engaged in educational work and 66 in law. As a general rule the Rhodes scholars have not distinguished themselves, either in athletics or scholarship, so much as might be expected from the fact that they are selected from a large number of applicants for their physical and intellectual ability and are older than the average of Oxford students. The list of second and third class honors won by them in 1911 is large, but that of the first is decidedly meager. The confidential reports of their tutors, printed in the fifth annual report of the Carnegie Foundation for the Advancement of Teaching, give an interesting criticism of American education from the Oxford standpoint. The chief complaint is that the American students are less thoroughly trained, that their knowledge is too diffuse and inexact, and that they are lacking in the ability to express themselves and to master a hard subject. But the Americans are given credit for natural ability and earnestness of purpose.

VISITING PROFESSORS. The system of exchanges inaugurated by James Hazen Hyde and the Cercle Français some years ago has developed into an arrangement between Harvard University and the Sorbonne by which Harvard will send to Paris in alternate years a visiting professor and will receive in return every other year a professor from one of the French universities who will take charge of some regular class room instruction instead of giving a few public lectures. Under this new system Prof. William Davis of Harvard began in the fall of 1911 a course of lectures on physical geography at the Sorbonne. Prof. Theobald Smith of Harvard and Prof. Paul S. Reinsch of Wisconsin are the American exchange professors at Berlin this year. The University of Leipzig has arranged a system of exchanges with the United States similar to the Roosevelt professorship at Berlin and Professor Mannington of Wisconsin will be the first to go to Leipzig under this arrangement. European professors lecturing during 1911 at American universities include: Prof. Max Werworn, of Bonn, on physiology; Prof. Charles Diehl, of Paris, on Byzantine history; Prof. Willy Kuenkenthal, of Breslau, on vertebrate morphology; Mr. H. W. V. Temperley, of Cambridge, on English history;

Prof. Inazo Nitobe, of the Imperial University of Tokyo, on Japanese institutions. Prof. Henri Bergson, of the College de France, will lecture on philosophy in Columbia in 1913.

An interesting extension of the exchange idea has been developed by Harvard according to which one of the professors of that university will conduct classes for a month each in four Western colleges: Knox College, Galesburg, Ill.; Grinnell College, Grinnell, Iowa; Beloit College, Beloit, Wis.; and Colorado College, Colorado Springs; and one of the instructors of each of these colleges will be sent out to do graduate work and to act as assistant in one of the larger courses in Harvard. Prof. Albert Bushnell Hart is the first to be sent out from Harvard under this arrangement to the Western colleges where he will lecture on American history. Columbia has adopted a similar exchange system by which Prof. Leighton B. Morse will take the place of Prof. Weld in the department of physics at Coe College, Iowa, for a half year while the latter comes to Columbia.

FOREIGN UNIVERSITIES. The latest edition of *Minerva* (1910-1911) gives the following figures for the attendance in the winter semester, 1909-1910 of the largest universities in the world: Paris, 17,512; Berlin, 14,034; Cairo, 10,449; Moscow, 9516; St. Petersburg, 8955; Vienna, 8269; Munich, 7080; Budapest, 7000; Naples, 6600. There is of course little comparability between such figures as these. A student of the University of Cairo, for example, sitting on the floor of the mosque and repeating the Koran by rote is not to be classed in any but a formal way with a doctor of philosophy at Berlin. Allowance must also be made for the fact that the attendance reported above includes in some cases a considerable proportion of auditors or non-matriculated attendants at lectures. The number of students enrolled in the twenty-one German universities in the summer semester of 1911 was as follows: Berlin, 8039; Munich, 6890; Leipzig, 4592; Bonn, 4070; Freiburg, 2884; Halle, 2451; Breslau, 2432; Heidelberg, 2413; Göttingen, 2353; Marburg, 2192; Tübingen, 2081; Münster, 2007; Strassburg, 1964; Jena, 1817; Kiel, 1700; Würzburg, 1429; Königsberg, 1381; Giessen, 1334; Erlangen, 1030; Greifswald, 1029; Rostock, 834. Total, 54,962. This is an increase of 63 per cent. in ten years. In 1900 the total number of students was 33,700 and in 1909 it was 51,700. The faculties of philosophy and philology have the largest number, 16,158. Then follow medicine, 11,927; law, 11,023; mathematics and natural science, 8442; evangelical theology, 2825; political economy and agriculture, 2729; Catholic theology, 1834; dentistry, 1046; pharmacy, 916; forestry, 170; veterinary surgery, 160. Since 1908, when women were first allowed to matriculate in German universities, their number has rapidly increased, until in 1911 it reached 2552, of whom Berlin had the most, 605. Of the women students 452 are foreigners; one-half of them Russians and one-third Americans. The first woman to occupy a university chair in Germany is Fräulein Woker, a chemist from the University of Bern, who has been called to Leipzig as extraordinary professor. The Swiss universities in 1911 enrolled 10,311 students, of whom 1322 were in the school of technology. Of the 6862 regular students in the seven Swiss universities 1490 were women. The foreign element constituted

52.5 per cent. of the whole. Of the 41,130 students in the French universities, 3954 were women, 45 per cent. of them foreigners. The foreign women students in Switzerland and France are largely Russians.

Germany, France, and England have been occupied during the year with hot discussion over the place of the classics in modern education. The German gymnasium or secondary school which has long been the object of admiration by American educators is now being sharply criticised in its own country, notably by Prof. Wilhelm Ostwald of Leipzig, for its rigidity and conventionality. On the other hand the classicists are making energetic efforts to prevent the further displacement of Greek by English. In France an organized effort is being made to overthrow the secondary curriculum adopted in 1902 which placed on an equality the four courses of Latin-Greek, Latin-modern languages, Latin-scientific, and modern languages-scientific. The leagues of French culture and friends of Latin were formed to restore compulsory Latin, which was met by an opposing society, the Friends of French and Modern Culture. Imposing lists of names distinguished in letters, science, politics, engineering, and commerce were drawn up by both parties. One side brought out the fact that 70 per cent. of the classical students and only 40 per cent. of the non-classical passed the final lycée examinations. The other side showed that in the Polytechnique examinations in French composition of the last ten years the "moderns" were superior. The number of high school students studying Latin has actually increased in France, as it has in America, since it ceased to be required for the universities. The interests involved in the question were political and social rather than educational; for the clerical schools, which the government is replacing by secular schools, were devoted to classical education. The senate after discussing the matter for several sessions adopted an ingeniously worded resolution to the effect that "considering that one of the principal objects of the reform of 1902 was to safeguard Greco-Latin culture by confining it to that part of the clientele of the lycées and colleges which is most apt to receive it and profit by it" the present programme should be maintained. In England the battle raged about the question of compulsory Greek. Oxford and Cambridge are the only universities in Great Britain requiring Greek of all students at entrance and in their pass courses for an ordinary degree. This requirement shuts out from these universities the large and increasing proportion of students who for lack of inclination or opportunity have not taken the classical course in the secondary schools. The chancellor of Oxford, Lord Curzon, and the Hebdomadal council presented among other measures for university reform a proposal to dispense both passmen and candidates for honors from the necessity of taking two ancient languages at responsions. This was rejected by the congregation, which is composed of the instructors and resident graduates of the university, but in 1911 a compromise proposal was introduced which permitted only candidates for honors in science and mathematics to take, in the place of one ancient language, two other studies, French or German and English history, elementary trigonometry, statics and dynamics, physics or chemistry. This was approved in the congre-

gation by a vote of nearly two to one and was championed by Prof. Gilbert Murray, regius professor of Greek, as not only the best terms obtainable but as conducive to the real interests of classical studies. But when the statute was brought before the convocation, the final authority of Oxford, composed of all the graduates who have kept their names on the books, it was defeated by a vote of 595 to 360. The failure of both Oxford and Cambridge to accomplish the reforms, both educational and financial, which in some degree are recognized by all as necessary, has strengthened the demand for a revision of the constitution which shall prevent non-residents from thwarting the purposes of those responsible for the administration and instruction of the university and it is expected that a royal commission will be appointed to effect a reorganization as has been done several times before.

Such a royal commission, with Lord Haldane as chairman, has been for two years engaged in the study of the problems of the University of London, where a large number of scattered institutions of diverse origin and ideals are to be welded together into one harmonious whole. The commission has published three "blue-books" of evidence, containing the views of a large number of English and some American educators upon various phases of administration and instruction, and has made four preliminary reports, the last of which recommends the purchase of a central site in London and the construction of adequate and convenient buildings appropriate in design to the dignity and importance of the university. Two of the leading institutions forming London University, King's College and University College, have combined their architectural departments into one school of architecture and sculpture and an anonymous donor has provided \$150,000 for a building on the University College site adjoining the new chemical laboratories. This building will also house the laboratory for national eugenics, to which the late Sir Francis Galton left the residue of his estate, about \$225,000. The first occupant of the new chair of eugenics is Prof. Karl Pearson, who for many years has carried on this work at University College. King's College, the first institution in England to establish a course of higher education for women, centring round domestic and institutional life, has secured \$300,000 for the endowment of "home science." A congress of the universities of the empire will be held in London, July, 1912, at which 51 universities will be represented and such subjects discussed as interchange of teachers, mutual recognition of entrance tests, the establishment of a central university bureau, etc.

Another independent university will be chartered in England within the next four years at Reading where a university extension college started in 1892 has developed university work and secured an endowment fund of \$1,250,000. Now that the Union of South Africa is accomplished it is proposed to establish a national university, perhaps on the Cecil Rhodes estate of Groote Schuur. The bequest of the late Alfred Beit with other available funds amounts to \$2,500,000 and the nine colleges now in the Union would form a foundation for university work. McGill University, Montreal, in a five-day campaign raised an endowment fund of over \$1,500,000.

The Prussian ministry of education has approved of plans for a new university at Frankfurt-on-the-Main to be opened in 1914. It will comprise three faculties—philosophy, law, and medicine; but not, like all the other German universities, theology. The municipality already spends about \$450,000 on hospital laboratories and other institutions which will form part of the university and a fund of \$400,000 has been raised, mostly by subscription, to start the university. The Hungarian minister of education proposes to establish two new universities in Hungary, at Pressburg and Debreczen; the first to include faculties of medicine, science, and law, and the second, law, letters, and science, and Protestant theology. The facilities for higher education in India are likely to be increased by the establishment of a Mohammedan university at Calcutta, and a Hindu university at Benares. For the former an income of \$165,000 has been provided and for the latter an endowment of \$1,000,000 has been raised, chiefly by native subscription. The emperor at the Delhi durbar made a liberal donation to Indian education.

BIBLIOGRAPHY. Among the important educational books of the year were: *Educational Problems*, by G. S. Hall; *Cyclopædia of Education*, by P. Monroe; *Latin and Greek in American Education*, by F. W. Kelsey; *Chapters from School College and Character*, by L. R. Briggs; *Woman and the University*, by D. S. Jordan; *Higher Education as a Training for Business*, by H. P. Judson; *Universities of the World*, by C. F. Thwing; *Household Administration; its Place in the Higher Education of Women*, by A. Ravenhill and C. J. Schiff. See also **EDUCATION IN THE UNITED STATES**.

Further information covering the leading universities and colleges will be found in separate articles devoted to them in this YEAB BOOK.

UPHUES, JOSEPH. A German sculptor, died January 2, 1911. He was born at Sassenberg in 1850. He studied at the Berlin Academy in the studio of Begas. Many of his sculptural groups are erected in Berlin. Among these are a statue of Frederick the Great and several of the groups which ornament the Siegesallee. He executed the Kaiser Wilhelm monument at Düren and one of Bismarck at the same place, and one of the Kaiser and Kaiserin at Homburg. A replica of his statue of Frederick the Great was presented to the United States by the Emperor William and was erected in the War College grounds at Washington.

UPPER-SENEGAL AND NIGER. An inland French colony in French West Africa (q. v.), having an area of 819,360 sq. kilometers and a population recently estimated at 4,663,326 (832 French). Bamako, with (1909) 6579 inhabitants, is the capital. Exports of rubber in 1909, 1,930,316 francs. The imports were valued in 1909 at 2,342,192 francs and the exports at 3,159,996. There is a railway from Koulikoro to Kayes. Telegraph lines, 8396 kilometers, telephone, 35. The revenue was estimated for 1909 at 7,363,838 francs, and the expenditure at 7,196,364. The entire colony is under civil government and is administered by a lieutenant-governor (M. F. Clozel in 1911) acting under the direction of the governor-general of French West Africa.

URUGUAY. A republic on the coast of South America between Brazil and Argentina. The capital is Montevideo.

AREA AND POPULATION. With an estimated area of 72,210 sq. miles, Uruguay is the smallest South American republic. The census of October 12, 1908, showed a population of 1,042,668, and the 1910 estimate 1,112,000. Movement of the population is shown by the following figures, for 1909 and 1910 respectively: Births (including stillbirths), 35,663 and 35,927; deaths (including stillbirths), 15,249 and 16,515; stillbirths, 1287 and 1307; excess of births, 20,414 and 19,412; arrivals, 165,638 and 119,684; departures, 145,534 and 105,683; marriages, 6591 and 6918. In 1910 the department of Montevideo (256 sq. miles) had an estimated population of 324,451. The city of Montevideo has about 315,000 inhabitants. There is no other large city, the principal towns being Paysandú (with about 19,000 inhabitants), Salto (18,000), Mercedes (15,000), Florida (12,500), San José (12,100).

EDUCATION. Primary instruction is free and nominally compulsory. In 1909 public primary schools numbered 790, with 76,042 pupils enrolled; private primary schools, 263, with 19,028. During 1910 210 new schools were opened, and the enrollment at the end of that year was about 117,000. There is a number of establishments for secondary education. The new buildings of the national university at Montevideo were dedicated January 22, 1911.

PRODUCTION AND COMMERCE. A large portion of the country is utilized for grazing, and only about 2.5 per cent. of the total area is under cultivation. The principal crops are wheat and corn; others of some importance are linseed, oats, barley, tobacco, olives, and grapes. Stock-raising affords the principal source of wealth. According to the livestock census of 1908 there were 8,192,542 cattle, 24,730,289 sheep, 556,297 horses, 17,581 mules, 4358 asses, 180,197 swine, and 19,951 goats. Many minerals are known to occur, but mining is little developed. There are a few manufacturing industries in Montevideo, but the country depends almost entirely on the importation of foreign goods.

Final official details of Uruguayan commerce for 1910 are not available. The following values, stated in thousands of gold pesos, have been reported for the special trade:

	1907	1908	1909	1910
Imports	37,471	38,730	37,157	41,151
Exports	34,912	40,296	46,150	41,666

The leading imports are textiles (about 8,200,000 pesos in 1908), food products (7,686,000), earthenware (4,060,000), iron and steel, beverages, lumber, etc., chemicals and drugs, oils, tobacco, and paper. In 1908 and 1909 the exports of livestock products were valued at 37,770,415 and 41,596,126 pesos respectively; agricultural products, 2,184,209 and 2,860,515. The principal exports in those two years are reported as follows: Wool, 17,429,121 and 19,317,304 pesos; hides and skins, 10,267,124 and 11,543,140; meats and extracts, 5,878,682 and 6,401,195; grain and seed, 1,760,258 and 2,343,552; live animals, 1,764,614 and 1,854,789; fats, 1,639,430 and 1,657,619; hair, 347,839 and 354,178; flour, meal, etc., 249,343 and 324,131. Imports from and exports to the principal countries in 1908 (the latest year for which complete figures are available) were as follows, in thousands of pesos: Great Britain, 12,126 and

2772; Germany, 6439 and 6900; France, 3765 and 9142; United States, 3457 and 3890; Italy, 3172 and 1461; Argentina, 2554 and 8474; Belgium, 2277 and 4156. In 1909 there entered 4869 vessels, of 7,514,365 tons (7,184,287 at Montevideo). The merchant marine in 1911 comprised 30 steamers, of 23,960 tons net, and 62 sailing vessels, of 27,178 tons net.

COMMUNICATIONS. The reported length of railways in operation at the end of 1910 was 2638 kilometers; under construction, 580 kilometers. A considerable amount of trackage was completed in 1911; early in November occurred the official inauguration of the Treinta y Tres Central Uruguayan Eastern extension. Telegraphs (1910), 319 offices, with 7804 kilometers of line; telephones, 4803, with 34,614 miles of wire; post offices, 1018.

FINANCE. The monetary standard is gold, and the unit of value the peso (coined only in silver), worth \$1.034. The budget for the year ended June 30, 1910, showed an estimated revenue of 21,079,880 pesos and an estimated expenditure of 21,075,330 pesos. The larger items of estimated expenditure were: Debt, 10,255,357 pesos; war and marine, 3,057,378; interior, 2,997,013; industry and public instruction, 1,572,257; finance, 1,371,456. The budget submitted for the fiscal year 1912 showed an estimated revenue of 28,534,000 pesos and an estimated expenditure of 28,533,619 pesos. Customs revenue in the fiscal year 1911 amounted to about 16,000,000 pesos.

During 1910 the debt was reduced by 1,576,908 pesos, standing at the end of the year as follows: External consolidated, 123,309,818 pesos; international, 2,475,500; internal, 8,443,558; total, 134,228,876.

ARMY. The budget of 1910-1911 provided for a military strength comprising a general staff of 30 officers, an administrative bureau of 20 officers, and 100 civil employees, 2 regiments of field artillery with 86 officers and 600 men, 1 Maxim-Vickers battery of 6 officers and 100 men, 1 battery of fortress artillery with 6 officers and 100 men, 1 machine-gun company with 6 officers and 100 men, 3 sections of artillery, each with 2 officers and 20 men, a presidential escort of 6 officers and 100 men, 10 regiments of cavalry with 196 officers and 2550 men, 8 squadrons of cavalry with 48 officers and 600 men, 8 battalions of infantry with 160 officers and 2400 men, 9 companies of infantry with 54 officers and 720 men, 1 company of engineers with 8 officers and 100 men, 1 military academy with 16 professors and 50 students, a bureau of military justice with 26 officers, and a national arsenal of 15 officers and 150 employees, 13 generals and 82 cannon and machine-guns. The troops, both infantry and artillery, have modern weapons. In addition to the permanent army, there are 5000 men in the police force, and a national guard of about 100,000 men, with 120 cannon organized in 3 bans.

NAVY. In 1911 the navy included: One armored cruiser (the *Montevideo*), of 2200 tons; 1 torpedo cruiser (the *Uruguay*, 1910), of 1500 tons; 4 gunboats, aggregating 2600 tons; 5 dispatch boats; 1 schoolship. Personnel, 60 officers and 600 men. There were 4 gunboats under construction.

GOVERNMENT. The executive authority is vested in a president, elected by the General Assembly for four years and assisted by a responsible ministry. The legislative power de-

volves upon the General Assembly, which consists of the Senate (19 members) and the House of Representatives (75). The president for the term beginning March 1, 1907, was Claudio Williman. His successor, José Batlle y Ordóñez, who was president in 1903-7, was inaugurated March 1, 1911.

UTAH. The Thirteenth Census showed a population in 1910 of 373,351, compared with 276,749 in 1900, an increase of 34.9 per cent. in the decade. The principal cities with their population in 1910 and 1900 are given below (the figures in parenthesis are for 1900): Salt Lake City, 92,777 (53,531); Ogden, 25,580 (18,313); Logan, 7522 (5451).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the number of all farms in the State was 20,676, as compared with 19,387 in 1900. The land in farms was 3,397,699 acres, as compared with 4,116,951 acres in 1900, a decrease of 719,252 acres. The improved land in farms in 1910 was 1,368,211 acres, as compared with 1,032,017 acres in 1900. The average acreage per farm in 1910 was 156.6, as compared with 212.4 in 1900. The value of the farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$150,795,201, as compared with a value in 1900 of \$75,175,141, an increase of \$75,620,060. The average value of all farm property per farm in 1910 was \$6957 as compared with \$3878 in 1900. The average value of land per acre in 1910 was \$29.28 as compared with \$9.75 in 1900. Of the 21,676 farms in 1910, 19,956 were operated by owners and managers and 1720 by tenants. Of the farms operated wholly or in part by owners those free from mortgage in 1910 numbered 15,131, those under mortgage, 4492. Of the total number of farms, 15,948 were owned or managed by native white farmers, 5452 by foreign-born whites, and 276 by negroes or other non-whites. Of the non-whites 200 were Indians, 52 Japanese, 13 Chinese, and 11 negroes. The value of the various kinds of domestic animals, poultry, and bees in 1910 was \$28,781,691, as compared with a value in 1900 of \$21,474,241. The cattle numbered 412,334, valued at \$8,948,702; horses and colts, 115,676, valued at \$9,999,835; mules, 2277, valued at \$157,497; swine, 64,286, valued at \$445,653; sheep and lambs, 1,827,180, valued at \$8,634,735. The poultry of all kinds numbered 691,941, valued at \$327,908. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod. bu.	Value
Corn .....1911	8,000	280,000	\$227,000
.....1910	7,000	212,000	178,000
Wheat .....1911	225,000	5,025,000	3,518,000
.....1910	198,000	4,730,000	3,671,000
Oats .....1911	87,000	3,889,000	1,828,000
.....1910	85,000	3,655,000	1,754,000
Rye .....1911	5,000	78,000	55,000
.....1910	5,000	92,000	63,000
Potatoes ..1911	15,000	2,100,000	1,785,000
.....1910	14,000	1,988,000	1,173,000
Hay .....1911	380,000	a 950,000	8,550,000
.....1910	380,000	1,140,000	10,260,000
a Tons.			

MINERAL PRODUCTION. The State is one of the larger producers of copper. The output in 1910 was 125,185,455 pounds of blister copper, as compared with 101,241,144 pounds in 1909. The in-

crease was due to the production from the Bingham district.

The coal production of the State in 1910 was 2,517,809 short tons, valued at \$4,224,556. In 1909 the production was 2,266,899 short tons, valued at \$3,751,810. The production was affected only slightly by the coal strikes in the Middle West. The increased production is looked upon as only an indication of normal growth that may be expected to continue as the country develops in population and industrial enterprises. There were employed in the coal mines of the State in 1910, 3053 men. These were kept steadily employed.

The production of copper in Utah in 1911 showed a decided increase over the output of 1910. The main output as in the previous years was derived from the Bingham district, though the Tintic district contributed an important amount and the Frisco district made a larger production than in 1910. The most important events of the year affecting the industry in the State were the completion of the Bingham and Garfield Railway connecting the mines and mills of the Utah Copper Co., and the remodeling and enlargement of this company's mills.

The State is a large producer of gold and silver. The production of gold in 1910 was 195,052 fine ounces, valued at \$4,032,085. In 1911 the output was 227,834 fine ounces, valued at \$4,709,747. The production of the silver in 1910 was 10,466,971 fine ounces, valued at \$5,652,164. The silver production in 1911, according to the preliminary estimates of the director of the mint, showed a large increase. The State ranked first in the output of silver in the latter year. The production was 12,679,633 fine ounces, valued at \$6,973,798.

FINANCE. The report of the treasurer for the biennial period 1908 to 1910 showed a balance on hand November 30, 1908, of \$258,833. The receipts for the period were \$6,157,126. The total disbursements amounted to \$5,153,220, leaving a balance on hand November 30, 1910, of \$602,739.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the Deaf and Dumb Asylum, the Insane Asylum, Institution for the Blind, Miners' Hospital, the Reform School, and the State Prison.

POLITICS AND GOVERNMENT

The State legislature met in 1911 and the most important measures enacted will be found in the paragraph *Legislation*, below. On January 17 George Sutherland was reelected to the United States Senate without opposition. There was no State election during the year, but municipal elections were held on November 7. In Salt Lake City the first elections were held under the commission form of government imposed upon the city by the legislature without the consent of the voters of the city. The mayoralty candidates were Samuel C. Park, who was supported by the Citizens' ticket, and John S. Bransford, the candidate of the American party. The entire Citizens' ticket was elected by majorities of about 5000 in a total vote of about 25,000. In addition to the mayor, who is called the mayor-commissioner, two 2-year commissioners and two 4-year commissioners were also elected. Mr. Bransford, the defeated candidate of the American party, had been mayor for four years.

LEGISLATION. Important measures passed at the legislative session of 1911 included the following: A measure vesting the municipal government of all cities of the first class in a board of five commissioners, consisting of a mayor and four commissioners, and in cities of the second class in a board of commissioners consisting of a mayor and two commissioners, to be known as the board of commissioners of the respective cities. These commissioners are to be chosen at the general election in November, 1911, and are to assume office on the first Monday of January, 1912. The executive and administrative powers, authorities, and duties not possessed by the mayor and council of the respective cities are distributed among five departments: Department of public affairs and finance; department of water supply and water works; department of public safety; department of streets and public improvements; and department of parks and public property. In cities of the first class a mayor and two commissioners shall be elected for a term of four years, and two commissioners for a term of two years, and thereafter, biennially, two commissioners shall be elected for a term of four years, and quadrennially thereafter the mayor shall be elected for a term of four years. The commissioners in both classes of cities have the appointment of city officers other than auditor, who shall be elected. This will affect Salt Lake City of the first class, and Ogden City, Provo City, and Logan City of the second class. A child labor law was passed preventing the employment of any children under the age of 14 years in certain designated employments, including coal mines, cigar factories, breweries, distilleries, etc. Restrictions were also placed on the employment of females under the age of 21, and no boy under the age of 14 years or no girl under the age of 16 years is permitted to work in any gainful occupation other than domestic service, fruit or vegetable packing, or work on a farm, more than 54 hours in one week. Measures were passed prohibiting the selling or giving away of cigars, cigarettes, or tobacco in any form, or opium or other narcotic in any form to any person under 21 years of age, except upon the prescription of a physician. Provision was made for the employment of convict labor for the construction of State roads.

STATE OFFICERS. Governor, William Spry; Secretary of State, C. S. Tingey; Treasurer, David Mattson; Auditor, Jesse D. Jewkes; Attorney-General, A. R. Barnes; Superintendent of Education, A. C. Nelson; Commissioner of Insurance, Willard Done—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Joseph E. Frick; Justices, W. M. McCarty and Daniel N. Straup; Clerk, H. W. Griffith—all Republicans.

LEGISLATURE, 1911. Senate, Democrats, 2; Republicans, 16; total, 18. House of Representatives: Democrats, 7; Republicans, 38; total, 45.

The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

UTAH (ship). See **BATTLESHIPS**.

VACCINE TREATMENT. See **LEPROSY**.

VACUUM TUBE. See **ELECTRIC LIGHTING**.

VAGRANCY. Increasing attention has been given during the past few years to the problem of vagrancy, and during 1911 New York and Wisconsin took long steps towards its solution. Mr. James Forbes, secretary of the National Association for the Prevention of Mendicancy,

estimates the number of tramps in the United States at 350,000. Of these probably 75,000 belong to the aristocracy of the tramp world, that is, they are professional idlers roaming about over the country, living by begging, petty larceny, and other more serious crimes. The vast majority of tramps he classifies as "occasional vagrants." They work part of the time, but a great deal of the time live by begging, especially in cities and by deceiving mission workers and clergymen. A third class are the transient workers, who labor in the wheat fields, on the lake steamers, or in northern lumber camps, according to season. Finally there are the "mush fakers," or the superannuated tramps, who make a pretence at some such trade as umbrella mending. The ranks of vagrants are depleted by a very high mortality, by almshouses, prisons, and hospitals. They are recruited from the unemployed and by boys enticed into the life by either professional tramps or boys who have had some experience in wandering. They are most numerous along the main lines of railroads and have their favorite places of congregation at railroad centres and cities. They have become fairly well-organized, with an ingenious system of conveying information and a well-developed code of tramp ethics, as well as a tradition of how to succeed. The perfection of their organization is shown by the tramp conventions which have been held in recent years in various cities from Montreal to San Francisco.

NEW YORK FARM COLONY. The New York legislature passed a law establishing an industrial farm colony for "the detention, humane discipline, instruction, and reformation" of males over twenty-one years of age committed as tramps or vagrants. This is the first adoption in the United States of the plan of handling vagrants which has proven very effective in Switzerland, Belgium, and Germany. The colony is placed under the control of an unsalaried board of seven managers to be appointed by the governor. This board will appoint a superintendent and other employees of the colony, establish rules and regulations for administration, and formulate a system of penalties and credits. It may also determine the site and erect buildings for the housing and for the educational and industrial training of not fewer than five hundred inmates. The law requires that the labor of inmates shall be used as far as possible in the construction and improvement of the colony. The law states that commitments may be made by any judge after the colony is ready, "but no person shall be so committed who shall satisfy the court or magistrate that he supports himself through lawful employment. It is the intent and meaning of this act that workmen temporarily out of work and seeking employment shall not be called tramps or vagrants and be committed as such to the said colony." Commitments shall not be for a definite term and any inmate may be paroled or discharged by the board of managers. No one may be detained in the colony more than two years and no one who has not previously been admitted to a penal institution may be detained more than eighteen months. The board of managers of the colony was named by Governor Dix November 29 as follows: Orlando F. Lewis, secretary of the Prison Association of New York; Judge Joseph Beal, Oneida; George F. Warren, Cornell University; Samuel Untermyer,

New York; Frederic Almy, Buffalo; Michael J. Drummond, New York; and John G. O'Keeffe, New York.

Wisconsin authorized a new and very important authority, the Wisconsin Industrial Commission, with power to provide industrial or agricultural training for vagrants and others. This law was effective September 1, 1911. It would appear that the handling of the problem of vagrancy in that State may be expected to set a high standard of efficiency for other American States.

VALPARAISO UNIVERSITY. An institution of higher and secondary learning at Valparaiso, Ind., founded in 1873. The number of students enrolled in all departments of the university in 1910-11 was 5551. The faculty numbered 191. Seven new members were added to the faculty during the year. No noteworthy benefactions were received. The income for the year 1910-11 was about \$300,000. Plans were being prepared for a new law building during the summer of 1911, and the facilities for manual training and civil engineering were enlarged. The library contains about 15,000 volumes. President, 1911, Henry B. Brown, A. M.

VANCE, WILSON. An American soldier and writer, died November 10, 1911. He was born in Findlay, Ohio, in 1845, and was educated in the common schools. He enlisted as a private in the 21st Ohio infantry and served throughout the Civil War. He was awarded a medal of honor for gallantry at the battle of Stone River. He studied law at the Harvard Law School in 1855-7, and in 1870 became editor of the *Ohio State Journal*. He was connected with many other papers in an editorial capacity in Washington, Cincinnati, St. Louis, Chicago, Philadelphia, and St. Paul. In 1904 he became editor of *The Square Deal*, in which position he remained until the time of his death. He was the author of *Princes' Favors* (1879); *Little Amy's Christmas* (1879); *God's War* (1899), and *Big John Baldwin* (1909).

VANDALIUM. See **CHEMISTRY, INDUSTRIAL.**

VANDERBILT UNIVERSITY. An institution of higher learning at Nashville, Tenn., founded in 1872. There were enrolled in all departments of the university in 1911-12, 1100 students. The faculty numbered 120. There were received during the year 1910-11 two notable benefactions, one of \$150,000 from the general education board for endowment, and one of \$150,000 from Mr. W. K. Vanderbilt for the medical department. There was acquired during the year a special campus of 16 acres for the medical and dental departments. This campus has been greatly improved; the buildings were enlarged, and the work of the department was reorganized. The productive funds of the university amounted to \$1,800,000, and the income to about \$185,000. The library contains about 45,000 volumes. President, 1911, J. H. Kirkland, LL. D., D. C. L.

VANDERPOEL, JOHN HENRY. An American artist and teacher, died May 2, 1911. He was born at Haarlemmer-Meer, Holland, in 1857. He came in early youth to the United States, and was educated in the public schools of Chicago. He studied drawing and painting in Paris. Returning to the United States he became a member of the New York Water Color Club. He was for thirty years teacher of drawing and

painting in the Art Institute of Chicago. He was the author of *The Human Figure* (1907).

VAN DYKE, HENRY. See **LITERATURE, ENGLISH AND AMERICAN, Poetry.**

VASSAR COLLEGE. An institution for the higher education of women at Poughkeepsie, N. Y. The total number of students in the college is limited to about 1000. The total attendance in 1911-12 was 1055. The faculty numbered 111. Among the changes in the faculty during the year were the following: Prof. O. S. Tonks of Princeton University took charge of the art department in the place of Professor Pilcher, resigned; the departments of psychology and philosophy were separated and made independent departments under the same professors as before. Among the gifts received during the year were \$225,000 from Mrs. Russell Sage for a new residence hall to be called the Olivia Joselyn; and \$10,000 from Mr. and Mrs. W. S. Johnson of Canandaigua for the establishment of a scholarship in memory of their daughter. The productive funds of the college amounted to \$1,439,000, and the income to about \$64,000. The library contains about 70,000 volumes. President, 1911, James W. Taylor, D. D., LL. D.

VAHLEN, JOHANNES. A German philologist and educator, died November 30, 1911. He was born in Bonn in 1830 and was educated at the University of Bonn. While still a student he showed extraordinary abilities. At the age of 24 he edited fragments of Ennius, and in the same year became privatdozent at Bonn. In 1856 he was called to Breslau as professor extraordinary, and two years later he went to Friburg as full professor. In the same year he was called to the University of Vienna, where he remained for 16 years. He became professor of Latin at the University of Berlin in 1874, and this position he held until the time of his death. His lectures were attended by American students in large numbers. They included nearly all Latin writers and were elaborated with great care. It was said of him that no European scholar spoke and wrote Latin with equal purity and facility. He wrote many works dealing with Latin and Greek texts, the best known of which is perhaps his edition of Aristotle's *Poetics*, with a Commentary published separately. For several years he was co-editor of the periodical *Hermes*.

VAUGHAN, General Sir JOHN LUTHER. An English soldier, died January 2, 1911. He was born in 1820 and was educated at Rugby. In 1840 he was appointed to a cadetship in the Bengal army, landing in Calcutta. In 1841 he was nominated ensign in the Twenty-first Native infantry. Two years later he was appointed to the staff of General Littler and participated in an attack on the Gwalior army by an English force under Lord Ellenborough. On the conclusion of this affair he was appointed adjutant. In 1848 he was recommended by Henry Lawrence to the governor-general and was appointed second in command in the Fifth Punjab infantry. He served with that body of troops for twenty-four years. In 1855, after having been fourteen years in India, he returned to England on sick leave, but participated in service in the Crimea. On the conclusion of peace he returned to India and again commanded his regiment. In 1857 he took part in several engagements in which he was conspicuous for efficiency and gallantry. In 1859 he commanded a small field force on the frontier of Nepal. In 1863 in the Unweyla cam-

paign he displayed great skill and daring and was rewarded with the distinction of the Companionship of the Bath. He was appointed to command the Gwalior district in 1869. This ended his twenty years' service with the frontier force. He was appointed honorary colonel of the Fifty-ninth Vaughan's Rifles, and at the age of 50 retired from the army with the rank of major-general. He was nearly the last of the group of soldiers who, under the leadership of Henry Lawrence, introduced law and order into the Punjab. In the second Afghan War he acted as military correspondent for the *London Times*, and accompanied Lord Roberts to Kabul and Kandahar. He wrote *My Service in the Indian Army and After* (1905).

VEDDAS. See ANTHROPOLOGY.

VENEZUELA, UNITED STATES OF. A republic of South America, lying east of Colombia. The capital is Caracas.

AREA AND POPULATION. By the constitution promulgated August 5, 1909, the republic is divided into twenty states, two territories, and one federal district, covering altogether on area of 1,020,400 sq. kilometers, or 393,976 sq. miles. The population according to the census of 1891 numbered 2,323,527, a density of 2.27 to the sq. kil.; estimated 1910, 2,685,440; 1911, 2,713,703. The marriages in 1910 numbered 8120; births, 82,487; deaths, 55,436; arrivals, 8420; departures, 7374. Caracas has about 73,000 inhabitants; Maracaibo, 50,000; Valencia, 40,000; Barquisimeto, 32,000; Puerto Cabello, 14,000; La Guaira, 12,000.

EDUCATION. The number of pupils receiving elementary education in the last quarter of 1909 was 48,148 (26,670 boys and 21,478 girls). Of these, 31,850 (17,988 boys and 13,862 girls) were in the national schools (1004); 4723 (2594 and 2129) in the federal schools (146); 7564 (3534 and 4030) in the municipal schools (225); 4011 (2554 and 1457) in private schools (150). The total pupils in all schools in 1907 was 35,786; in 1905, 35,814. There are two universities and a few higher and technical institutions. Roman Catholicism is the national religion.

PRODUCTION. The establishment of the refrigerating plant at Puerto Cabello has done much to benefit the cattle-raising industry, which in recent years had declined. Coffee, cacao, balata, and rubber are produced for export. Sugar-cane is raised, and a sugar-mill is to be erected in the neighborhood of Valencia. Many projects for industrial development are contemplated.

Asphalt and petroleum exist in workable quantities. Lack of transportation facilities has hindered the development of the rich mineral resources.

COMMERCE. The trade for three years (ending June 30) is shown below in bolivars:

	1909	1910	1911
Imports	49,180,484	56,640,971	80,178,933
Exports	83,145,315	86,419,582	96,920,228

Total imports for year ending June 30, 1905, 48,434,143 bolivars; 1906, 44,952,867; 1907, 51,679,088; 1908, 54,420,660. Exports: 1905, 72,516,050 bolivars; 1906, 80,982,119; 1907, 81,019,864; 1908, 78,145,218.

The principal articles of export are given, with values in thousands of bolivars, for fiscal years, at the top of the next column.

	1905	1909	1910	1911
Coffee	31,000	40,492	37,104	43,111
Cacao	12,667	17,904	17,424	18,605
Balata	6,680	6,728	10,189	12,387
Cow hides	5,366	4,647	5,923	4,520
Rubber	398	2,398	2,805	2,074
Gold	2,099	1,592	1,660	2,914
Goat skins	1,305	1,477	1,868	2,367
Cattle	6,480	1,049	1,101	942
Asphalt	1,328	744	924	1,013

The principal countries of origin and destination are given below, with the value of their trade in millions of bolivars:

	Imports			Exports		
	1907	1910	1911	1907	1910	1911
Great Britain....	19.6	15.2	23.7	7.0	9.7	10.7
United States....	13.1	18.5	20.9	29.8	31.1	31.6
Germany	10.2	10.7	13.8	5.0	8.3	15.7
France .....	.4	3.8	9.6	20.4	26.7	26.8
Netherlands	4.8	3.9	6.0	9.6	4.3	4.2
Spain	1.7	2.8	3.1	2.8	3.2	5.3
Italy	1.6	1.5	2.6	.4	.2	.4
Belgium .....	.4	.3	.5	.0	.0	.1

Vessels entered (1910), 994, of 1,151,334 tons. The merchant marine consisted of 8 steamers, of 2046 tons, and 15 sailing vessels, of 2432.

COMMUNICATIONS. Railways extend from the coast into the interior; but as they are not connected to form a system, they offer only inadequate transportation facilities. Total lines in operation (1910), 12, aggregating 872 kilometers (542 miles); with about \$40,000,000 invested capital. A three-mile extension of the Central Railway to Santa Lucia was completed in 1911. A concession was granted for a line from the Orinoco to El Callao, to be finished in four years. There are over 6000 miles of navigable waterways, and a coastwise steamship service is maintained. Telegraph lines (1910), 7839 kilometers. Telegraph offices, 179; post offices, 282.

FINANCE. The bolivar (worth 19.3 cents) is the unit of value. Financial statistics are given below for three years, ending June 30, in bolivars (1911 budget):

	1909	1910	1911
Revenue	50,410,133	48,562,857	48,000,000
Expenditure	47,668,810	52,337,125	48,000,000

The 1911 estimate does not include 1,250,000 bolivars extraordinary. The 1912 budget was estimated to balance at 51,131,250 bolivars, exclusive of 2,302,327 bolivars extraordinary. The principal sources of revenue in 1910 (as compared with 1909, in parentheses) were as follows: 40,492,192 bolivars from taxes on industries (40,196,114), of which 21,417,309 from customs (19,386,295); 3,513,500 from rent or sale of government lands, salt deposits, and pearl fisheries (5,147,702); 1,700,875 from duties on deeds and contracts (2,965,302); 998,844 from revenue-earning administrations (862,773); 8000 from special enterprises (58,428). Main avenues of expenditure: 18,349,752 for finance, etc. (14,684,033); 12,136,410 for internal administration (7,843,556); 9,611,531 for war and marine (9,113,535); 3,475,295 for agriculture, commerce, and industry (3,110,381); 3,106,051 for public instruction (2,961,139); 1,578,433 for public works (1,992,931); 918,122 for foreign affairs (3,627,993); 3,161,681 extraordinary (4,335,243).

The public debt stood, December 31, 1910, at

107,807,478 bolivars (foreign, 124,011,893; internal, 64,576,036; mixed commissions, 9,219,549).

ARMY. Venezuela maintains an active army consisting of 20 battalions of infantry, each of 400 men; 8 batteries of artillery, each of 200 men, and a battalion of marines. The total strength of the force on a peace footing is about 4000, and a national militia of about 100,000 is maintained on much the same lines as in other South American countries.

NAVY. The navy in 1911 included 3 gunboats, a transport, a tug, a torpedo boat and a dispatch boat. Personnel, 457.

GOVERNMENT. The executive authority rests in a president (1911, Gen. Juan Vicente Gómez, inaugurated June 3, 1910), who holds office for four years at an annual salary of 108,000 bolivars. He is aided by a council of eight ministers. The legislative body is composed of a senate (40 members) and a chamber of deputies—one deputy to every 35,000 inhabitants.

Early in July it was reported that General Castro, former dictator, had returned after his two and a half years' exile and was organizing a revolutionary movement. It was said that he would organize a party of opposition. See **ARBITRATION**.

VENTILATION, EXPERIMENTS IN. See **HYGIENE**.

VERMONT. POPULATION. The Thirteenth Census showed a population in 1910 of 355,956, compared with 343,641 in 1900, an increase of 3.6 per cent. in the decade. The principal cities with their populations in 1910 and 1900 are given below (the figures in parentheses are for 1900); Burlington, 20,468 (18,640); Rutland, 13,546 (11,499); Barre, 10,734 (8448); Bennington, 8033 (6391); Montpelier, 7856 (6266); Brattleboro, 7541 (6640).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. The figures are of the date of April 15, 1910. On that date the farms in the State numbered 32,709, as compared with 33,104 in 1900, a decrease of 1.2 per cent. The land in farms in the State in 1910 amounted to 4,063,577 acres, as compared with 4,724,440 acres in 1900. The improved land in farms amounted to 1,633,965. The average number of acres per farm was 142.6. The total value of farm property was \$145,399,728, as compared with a value of \$108,451,427 in 1900, an increase of 34.1 per cent. The average value of all property per farm was \$4445, and the average value of land per acre was \$12.52. The farms operated by owners and managers numbered 28,701 and those operated by tenants, 4008. Of the owned farms 14,851 were free from mortgage and 13,140 were mortgaged. Of the total number of farms 28,968 were owned by native white farmers, 3721 by foreign-born white farmers and 20 by negro and other non-white farmers.

The domestic animals, poultry, etc., in 1910 were valued at \$22,642,686, as compared with a value of \$17,841,317 in 1900. The cattle numbered 430,314, valued at \$11,828,892; horses and colts, 80,781, valued at \$8,591,357; mules, 429, valued at \$53,540; swine, 94,821, valued at \$974,779; and sheep and lambs, 118,551, valued at \$538,991. The poultry of all kinds numbered 938,524, valued at \$607,787. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the table in next column.

	Acreage	Prod., bu.	Value
Corn .....1911	46,000	1,886,000	\$1,509,000
.....1910	44,000	1,892,000	1,249,000
Wheat .....1911	1,000	28,000	28,000
.....1910	1,000	29,000	30,000
Oats .....1911	76,000	2,660,000	1,569,000
.....1910	76,000	3,154,000	1,577,000
Potatoes ..1911	26,000	2,730,000	2,157,000
.....1910	26,000	3,380,000	1,521,000
Hay .....1911	930,000	a 1,209,000	16,926,000
.....1910	930,000	1,256,000	15,574,000
Tobacco ..1911	100	b 170,000	27,200
.....1910	100	160,000	23,200

a Tons. b Pounds.

EDUCATION. The principal features of school legislation in 1911 were as follows: The change of the school year from April 1 to July 1; provision enabling towns to pension teachers who have served thirty or more years; an enactment providing for medical inspection of schools; the transformation of the normal school at Randolph Centre into a State Agriculture School which opened September 26, 1911, with fifty-two students; the establishment of twelve teacher training courses in high schools and academies. To such training courses only seniors and graduates are admitted; the raising of the standard of the normal schools so that hereafter none shall be admitted except high school and academy graduates.

FINANCE. The report of the treasurer for the fiscal year ending July 1, 1911, showed total receipts of \$2,154,880 and disbursements of \$2,180,068, leaving a balance at the end of the year of \$566,141.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the State Prison, House of Correction, Industrial School, and the State Hospital for the Insane.

POLITICS AND GOVERNMENT

There was little of political importance in the State during the year. The legislature met and the most important measures enacted will be found noted in paragraph *Legislation* below.

There were no elections in the State during the year, but the campaign for the governorship in 1912 began to make itself felt distinctly, owing to the attention devoted to the issues of corrupt practices in politics and the revision of tax laws so as to do away with double taxation so-called, and with the burdens borne by the young business man or the young farmer starting out in life and facing the necessity of paying taxes on what he owes as well as on what he owns.

One of the important industrial developments of the year in Vermont was the movement for the building of a railroad to the asbestos region in the northern part of the State, which is said to contain one of the few great deposits of asbestos in the United States, most of this country's supply of this product coming from Canada.

During the year marked progress was made in connection with the movement for the development of the Lake Champlain international water route through the construction of canals between the lake and the Hudson River on the one hand, and the St. Lawrence River on the other, surveys having been begun for the deepening of "the Shallows" in the southern end of Lake Champlain.

LEGISLATION. The important measures passed at the legislative session of 1911 included the

following: Provision was made for maintaining a State Bureau of Information in the office of the Secretary of State, to promote the natural resources of the State by collecting, publishing, and distributing statistics of its natural industrial advantages. Provision was made for the destruction of insect pests such as San José scale, gipsy moth, etc. The office of State ornithologist was created, with the duty of investigating the distribution, food, habits, and utility of the birds of the State, and publishing the information. A measure was passed for the protection of the State from forest fires. A State school of agriculture was established. A system of pensions for teachers was authorized. Child labor throughout the State was regulated. The issuance of free passes by railroads to any persons in addition to those excepted was prohibited. A measure was enacted regulating savings banks and defining the duties of their officers and their investments. The office of commissioner of weights and measures was created. Several important measures were enacted relating to the protection of fish and game. Provision was made for the punishment of murder in the first degree, giving the jury the right to fix the penalty either at death or imprisonment for life. A measure was passed to prevent the white slave traffic.

STATE OFFICERS. Governor, John A. Mead; Lieutenant-Governor, Leighton P. Slack; Secretary of State, Guy W. Bailey; Treasurer, Edward H. Deavitt; Auditor, Horace F. Graham; Attorney-General, J. G. Sargent; Adjutant-General, Lee S. Tillotson; Superintendent of Education, Mason S. Stone; Commissioners of Insurance, E. H. Deavitt and Guy W. Bailey; Commissioner of Agriculture, O. L. Martin—all Republicans.

JUDICIARY. Supreme Court: Chief, Justice, John W. Rowell; Assistant Justices, Loveland Munson, John H. Watson, Seneca Haselton, George M. Powers; Clerk, M. E. Smilie—all Republicans, except Haselton.

STATE LEGISLATURE, 1911. Senate, Republicans, 30; Democrats, 0; Ind. Democrats, 0; Ind. Republicans, 0; House, Republicans, 106; Democrats, 48; Ind. Democrats, 2; Ind. Republicans, 0; joint ballot, Republicans, 226; Democrats, 48; Ind. Democrats, 2; Ind. Republicans, 0. Republican majority, Senate, 30; House, 146; joint ballot, 176.

The representatives in Congress will be found in the article UNITED STATES, section *Congress*.

VERUCA PERUANA. See **TROPICAL DISEASES**.

VESPASIAN. See **NAVAL PROGRESS, Propulsion**.

VETERINARY SCIENCE. The Bureau of Animal Industry in conjunction with the United States civil service commission continued its investigation and supervision of the courses of study and facilities for instruction at American veterinary colleges. It is now required that the student have instruction for an average of 6½ hours per day on 6 days per week for 25 weeks during 3 years, or a total of 3000 hours' instruction, to be eligible to examination for the meat inspection service. While night instruction is discouraged and has been practically discontinued by all but two colleges, it has been deemed advisable to make provision for such, as there has been a demand for classes after office or work hours, particularly in Washington, D. C. It has therefore been decided to fix the course for night colleges at 20½ hours per week

for 8½ months, as compared with 38½ hours per week for 6½ months for day colleges.

The works of value as text-books in veterinary colleges published during the year include Buchanan's *Veterinary Bacteriology*, Pammel's *Manual of Poisonous Plants*, Sisson's *Veterinary Dissection Guide*, Littlejohn's *Meat and its Inspection*, and Smyth's *Veterinary parasitology*.

The annual meeting of the American Veterinary Medical Association was held at Toronto, August 22 to 25. The officers elected for the ensuing year are: Dr. S. Brenton of Detroit, president; Dr. C. J. Marshall of Philadelphia, secretary; and Dr. G. R. White of Nashville, treasurer.

TUBERCULOSIS. The death of Dr. Saturnin Arloing, the noted French bacteriologist and director of the Veterinary School of Lyon, which took place March 31, at the age of 65 years, removes another leader in the investigation of tuberculosis. During the last 10 years Dr. Arloing gave a large part of his time to the investigation of methods of immunizing cattle against the disease. He was one of the leading opponents of Koch's theory of the non-transmissibility of the bovine type of the tubercle bacillus to man.

The final report of the royal commission appointed to inquire into the relations of human and animal tuberculosis was issued during the year. The actual number of cases representing the various clinical manifestations of tuberculosis commonly found in man that passed under strict observation and on which conclusions were based numbered 128. The lesions in cases of tuberculosis in the adult, especially cases of pulmonary tuberculosis, were referable with but few exceptions to the human type of the bacillus. The fatal lesions in young children dying from primary abdominal tuberculosis could in nearly one-half of the cases be referred to the bovine type of bacillus and to that type alone. In children and often also in adolescents suffering from cervical gland tuberculosis a large proportion of the cases examined could be referred to the bovine tubercle bacillus. The pig, though not capable in the commission's experimental experience of fostering tubercle bacilli of the human type except in a minor degree, may have to be regarded as a possible source of the disease caused in man by that type of bacillus, for the reason that particular glands of the pig's body, which are likely to enter into certain prepared foods, do on occasion yield tubercle bacilli of the human type.

Investigations continued by Doctors W. H. Park and C. Krumwiede, Jr., at the Research Laboratory of the New York City Department of Health, led to the conclusion that in young children the bovine type of the tubercle bacillus becomes a menace to life and causes from 6½ to 10 per cent. of the total fatalities from this disease.

The work of eradicating tuberculosis from the District of Columbia, which was undertaken in the fall of 1909, in order to demonstrate the practicability of eradicating bovine tuberculosis from a given area and in the interest of a wholesome milk supply, was continued during 1911 by the systematic retesting, at intervals of approximately 6 months, of all cattle which had been upon premises found to be infected at the time of the first test and the retesting of all other cattle in the district after an interval of one year, the latter retests not yet being com-

pleted. Cattle were found on 80 of the previously infected premises and the retesting disclosed infection on only 12 of these premises, thus showing a reduction of 85 per cent. in the number of infected premises since the original tests. The number of cattle retested on previously infected premises was 798, of which 764 passed and 34, or 4.26 per cent., reacted. All of the reactors were slaughtered and in every instance post-mortem examination showed lesions of tuberculosis. Annual retests applied to 484 cattle upon 278 premises which appeared to be free from infection at the time of the first test resulted in the discovery of 7 reactors.

Doctors E. C. Schroeder and W. E. Cotton reported the discovery of a new bacterium that is of common occurrence in samples of commercial milk examined at the experiment station of the Federal Bureau of Animal Industry. It was found to be present in the milk of approximately 10 per cent. of a herd of about 150 dairy cows located in the District of Columbia. It reaches the milk of apparently healthy cows before the milk leaves their udders, and it causes in guinea pigs a serious chronic disease, at times closely resembling tuberculosis in its gross pathologic appearance. This bacterium seems to have been overlooked in the past because it does not grow on ordinary culture media and because it is very chronic in its pathogenic action on guinea pigs, which animals it affects both through inoculation and ingestion. The importance of this bacterium still remains to be determined.

Investigations by Dr. G. B. Morse have shown that the growth of certain lumps or tumor-like masses in the subcuticular tissue about the head, neck, and wings of pigeons, and about the heads of Minorca fowls are due to acid-fast bacilli that are not, however, acid-alcohol fast. It therefore appears that this quite common disease of pigeons, usually pronounced tuberculosis on account of finding acid-fast bacilli in the cheesy material, must be recognized as a pseudo-tuberculosis.

FOOT-AND-MOUTH DISEASE. Foot-and-mouth disease, or apthous fever, probably the most rapidly contagious of all epizootics, broke out early in the year, and swept through Europe, and even invaded the British Isles. Reports of the occurrence of this disease during the middle of November showed that there were 20,720 infected herds in 3125 communes in France, 30,341 infected places in 6302 localities in Germany, 4391 outbreaks in 11 provinces in Holland, 25,265 "cours" infected in Hungary, 452 new cases, entailing 4684 animals, in Italy, 19,836 infected animals in Spain, 422,045 cases in 5635 communes in Russia, etc. Eighteen outbreaks, with 467 diseased animals, are reported to have occurred in England. It was estimated in July, at which time there were 16,027 outbreaks in France, that the loss would amount to over 15 million sterling. At last report the president of the board of agriculture and fisheries in Great Britain was about to appoint two experts to proceed to India, where the disease is very prevalent, to cooperate with two experts nominated by the Indian government in a study of the disease.

HOG CHOLERA. Much of the loss which would have resulted from the widespread occurrence of this disease in the United States during the year was prevented through the use of hog-cholera serum. Twenty-one States, including practically

all of those in which hog raising has been an important industry, have made provision for the production of this serum. The use of carbolized or phenolized blood was continued during the year, the later results confirming the earlier observations in showing that the virus of hog cholera may remain in contact with comparatively strong solutions of phenol for weeks, without noticeable impairment of its virulence. There seems to be but little doubt that phenolized blood will gradually come into general use in connection with the simultaneous method of vaccination.

TEXAS FEVER AND THE CATTLE TICK. The work of eradicating the cattle tick was continued by the Bureau of Animal Industry in cooperation with the State and local authorities. Good progress was made, areas aggregating 10,965 sq. miles being released from quarantine during the fiscal year ended June 30, making a total of 139,821 square miles released since the beginning of the work. Experiments in dipping cattle for the destruction of the ticks have shown that arsenical solutions are more satisfactory than the Beaumont crude petroleum, which has heretofore been used to a considerable extent, and arsenical dips are now being principally employed in the work of tick eradication.

DOURINE, or MALADIE DU COIT. Dourine of horses, which had apparently been completely eradicated by the Bureau of Animal Industry a few years before, as a result of several years' work, reappeared in Iowa. While the manner in which the infection was again introduced was not positively determined, it is thought to have been brought in by an imported stallion. Prompt and vigorous action resulted in the practical eradication of the contagion.

LIP-AND-LEG ULCERATION. Lip-and-leg ulceration of sheep, which has been quite prevalent in a malignant form in a large part of Wyoming and Montana within the past three years, was brought under control so well as a result of the work done by the Bureau of Animal Industry and State officials, assisted by favorable climatic conditions, that the federal quarantine was entirely released on August 10.

MALTA FEVER. Malta fever, a disease of goats that may be conveyed to man through the consumption of milk from infected animals and in other ways, was found to occur endemically among goats in the Pecos Valley of Texas.

GLANDERS. In studies made by Doctors J. R. Mohler and A. Eichhorn, of the Bureau of Animal Industry, during the course of an outbreak of glanders at Washington, D. C., it was found that a new laboratory test, known as complement-fixation, is a highly accurate and reliable means of determining doubtful cases of glanders in horses. Previous to this time mallein, although not entirely reliable, has been used for several years in the diagnosis of glanders.

ANTHRAX. The Pasteur vaccination for anthrax has been the method followed in the past in immunizing sheep against anthrax. As this method requires two injections and a month to become protective, it is possible for animals to become infected and die before protection can be afforded them. Investigations conducted by Dr. C. F. Dawson, of the Delaware Agricultural Experiment Station, in cooperation with the federal Bureau of Animal Industry, have resulted in the production of a single vaccine, which, as its name implies, is applied only once, requiring but 15 days for immunity to become established

and only one handling of the animal. The vaccine only differs from Pasteur's vaccine, which is a double vaccine, in its degree of attenuation. An anti-bacterial serum, which will confer a passive immunity immediately and thus protect the animal against fatal infection until the vaccine confers an active immunity, was also produced.

RINDERPEST. This highly contagious disease of various domestic animals was widespread in the Philippine Islands, occurring in 71 municipalities in 20 provinces.

CONTAGIOUS ABORTION OF CATTLE. It was determined by means of the complement fixation test that the cause of this disease, widespread in the United States, is the same as that described by Bang in Denmark, namely, *Bacillus abortus*.

GID IN SHEEP. It was definitely determined by experiments that the tapeworm stage of the gid parasite will develop in coyotes, the coyote as well as the dog being therefore a factor in the spread of this disease.

VICTORIA. A state of the Commonwealth of Australia. The area is stated at 87,884 sq. miles. Final returns of the census of April 3, 1911, show a population (exclusive of aborigines) of 1,315,551, as compared with 1,201,341 in 1901. The percentage of increase was 9.53, as compared with 18.05 for the commonwealth. The capital is Melbourne, with 501,830 inhabitants in 1911 (preliminary returns). Executive authority rests with a governor, who is appointed by the British crown and is assisted by a responsible ministry. The legislative power devolves upon a parliament of two elective houses, the Legislative Council and the Legislative Assembly. The governor, Sir Thomas D. Gibson-Carmichael, was succeeded May 24, 1911, by Sir John Michael Fleetwood Fuller; premier, John Murray. The general elections in November returned 46 Ministerialists and 19 members of the Labor Opposition. See AUSTRALIA; IRRIGATION.

VINTON, ALEXANDER HAMILTON. A bishop of the Protestant Episcopal Church, died January 18, 1911. He was born in Brooklyn in 1852 and graduated from St. Stephen's College in 1873. He studied at the General Theological Seminary and at the University of Leipzig. In 1878 he was ordained priest, and in the same year was in charge of the Church of the Holy Communion in Norwood, N. J. From 1879 to 1884 he was rector of the Church of the Holy Comforter, Memorial, Philadelphia, and from 1884 to 1902 was rector of All Saints', Worcester, Mass. In the latter year he was elected first bishop of the diocese of western Massachusetts. He held several high positions in church conferences and conventions. He was the author of occasional sermons, pamphlets, and addresses.

VINTON, FREDERIC PORTER. An American artist, died May 20, 1911. He was born in Bangor, Me., in 1846. At 15 years of age he entered business, and by the advice of William M. Hunt, the artist, he secured a position in a bank in order to have more time in which to study art. In 1875 he went to Paris, and after a year in the painting school of Léon Bonnat, he went to Munich, where he also remained a year. He returned to Paris in 1877, and entered the atelier of Laurens. In the same year he exhibited a picture at the Salon. He returned to Boston in 1878, and began his career as a portrait painter. He at once achieved success, and painted por-

traits of many men of distinction. Among them were Wendell Phillips, Charles Francis Adams, Prof. A. P. Peabody, Senator Hoar, William Warren, the comedian, and others. In 1882 he again went abroad, this time traveling and studying in Spain. He later traveled in France, Italy, and Holland. In 1888 he was elected an associate of the National Academy and an academician in 1901.

VIRGIN, SAMUEL HENDERSON. An American clergyman and pulpit orator, died September 17, 1911. He was born in Carver, Mass., in 1842. He gained a reputation as an orator when he graduated from the Phillips School in Boston with the first prize for oratory. He entered Harvard College as a member of the class of 1866, but left to become principal of the Leominster High School. He soon left this position to enter the Andover Theological Seminary, and was ordained to the Congregational ministry in 1866. The same year he received a call to the Broadway Church in Somerville, Mass. He was obliged to resign on account of ill health in 1871. During a visit to New York City he spoke in the Tilden Congregational Church and his address so attracted the attention of the members of the church that he was called to the pastorate. He soon gained a reputation as one of the leading pulpit orators of the city. He was one of the founders of the Young Men's Christian Association and the Young Women's Christian Association. In 1886 he received the degree of D.D. from New York University, and in 1890 was given the degree of LL. D. from Iowa University.

VIRGINIA, POPULATION. The Thirteenth Census showed a population in 1910 of 2,061,612, compared with 1,854,184 in 1900, an increase of 11.2 per cent. in the decade. The principal cities with their populations in 1910 and 1900 are given below (the figures in parentheses are for 1900): Richmond, 127,628 (85,050); Norfolk, 67,452 (46,624); Roanoke, 34,870 (21,495); Portsmouth, 33,190 (17,427); Lynchburg, 29,494 (18,891); Petersburg, 24,127 (21,810).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the total number of farms in the State was 184,018, compared with 167,886 in 1900. The land in farms was 19,495,636 acres, compared with 19,907,883 acres in 1900. The improved land in farms was 9,870,658, compared with 10,094,805 in 1900. The average acreage per farm was 105.9 in 1910 and 118.6 in 1900. The value of farm property, including land, buildings, implements, and machinery, domestic animals, poultry, and bees, in 1910 was \$635,065,383, compared with \$323,515,977 in 1900. The average value of all property per farm was \$3397 in 1910, compared with \$1927 in 1900. The average value of all land per acre was \$20.24 in 1910, compared with \$10.08 in 1900. The farms operated by owners and managers in 1910 were 135,189, and those operated by tenants, 48,729. Of the farms operated wholly or in part by owners, those free from mortgage numbered 111,474, and those under mortgage, 21,182. The native white farmers numbered 134,155; foreign-born white, 1749; negro and other non-white, 48,114. Of the non-whites, all but 75 were negroes. Of these 74 were Indians and 1 was Chinese. The value of all kinds of domestic animals, poultry, and bees was \$74,891,538, compared with \$42,028,737 in 1900. The cattle numbered 859,067, valued at \$21,124,071; horses and

colts, 330,424, valued at \$34,857,610; mules, 60,022, valued at \$7,595,516; swine, 797,635, valued at \$4,165,630; sheep, 804,873, valued at \$3,300,026. Poultry of all kinds numbered 6,099,581, valued at \$3,395,962. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	1,980,000	47,520,000	\$34,690,000
.....1910	1,960,000	49,980,000	32,487,000
Wheat .....1911	750,000	9,000,000	8,640,000
.....1910	748,000	9,574,000	9,287,000
Oats .....1911	194,000	3,880,000	2,095,000
.....1910	198,000	4,356,000	2,134,000
Rye .....1911	48,000	552,000	491,000
.....1910	50,000	675,000	540,000
Potatoes ..1911	95,000	4,275,000	4,104,000
.....1910	97,000	9,506,000	5,513,000
Hay .....1911	437,000	280,000	5,740,000
.....1910	475,000	555,000	8,192,000
Tobacco ..1911	760,000	128,000,000	12,288,000
.....1910	192,000	149,760,000	13,478,400

MINERAL PRODUCTION. A small amount of copper is produced in the State. The output in 1910 was 105,513 pounds of blister copper, as compared with 231,971 pounds in 1909.

The coal production of the State in 1910 was 6,507,997 short tons, with a value of \$5,877,486. This is the largest production in the history of coal mining in the State. There were produced in 1909 4,752,217 short tons. The coal produced has shown a steady increase in recent years. The strike in the States in the Mississippi Valley was the indirect cause of the remarkable increase, although little, if any, of the Virginia products was shipped to the west. The increased demand for coal in the State was due to the unusual demands upon the coal mines of West Virginia, which are customarily sent to the seaboard. They were diverted to more profitable markets in the West, which made an increased demand for Virginia coal for the seaboard.

The State ranks sixth in the production of iron ore. There were mined in 1910 903,377 long tons, valued at \$1,845,144, as compared with 837,847 long tons, valued at \$1,603,188, in 1909.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions under the control of the State include the Catawba Sanitarium, the Laurel Industrial School, the Negro Reformatory, the State Farm, the Virginia Penitentiary, the Virginia School for the Deaf and the Blind, the Virginia Home and Industrial School for Girls, and the Central, Eastern, Southwestern, and Western Insane Asylums. There are also a number of private institutions in the State which care for the feeble-minded. The total number of persons in the State institutions for the feeble-minded was 17,549, and in the private institutions, 18,476. The State Board of Charities during the year directed special attention toward investigating the problem of the feeble-minded, the indigent crippled, and deformed classes.

STATE OFFICERS. Governor, William H. Mann; Lieutenant-Governor, J. T. Ellyson; Secretary of the Commonwealth, B. O. James; First Auditor, S. P. Donohoe; Treasurer, A. W. Harman, Jr.; Superintendent of Instructions, J. D. Eggleston, Jr.; Attorney-General, Samuel W. Williams; Adjutant-General, W. W. Sale; Commissioner of Agriculture, George W. Komer; Commissioner of Insurance, Joseph Button—all Democrats.

JUDICIARY. Supreme Court of Appeals: Presi-

dent, James Keith; Justices, S. G. Whittle, John A. Buchanan, George M. Harrison, and Richard H. Cardwell; Clerk of the Court, H. Stewart Jones—all Democrats.

STATE LEGISLATURE, 1911. Democrats, Senate 35, House 90, joint ballot 125. Independents and Republicans, Senate 5, House 10, joint ballot 15. Democratic majority, Senate 30, House 80, joint ballot 110.

The representatives in Congress will be found in the article UNITED STATES, Congress.

VIRGIN ISLANDS. A presidency of the Leeward Islands (q. v.), covering 50 sq. miles, and having a population (census of 1911) of 5562. The capital of the group is Road Town (410 inhabitants in 1911). Cattle, sheep, and goats are raised; sugar and cotton are grown; a valuable copper mine is being worked. Revenue and expenditure (1910-11) £6091 and £5964 respectively; imports and exports, £8717 and £6864. The commissioner in 1911 was Leslie Jarvis.

VIRIBUS UNITIS. See BATTLESHIPS.

VISCHER, HANNS. See EXPLORATION.

VITALISM. See BIOLOGY.

VITAL STATISTICS. The following figures were compiled from the public health reports of the United States Marine Hospital Service. These figures, while admittedly incomplete and often misleading, particularly in the case of foreign countries, where the number of deaths sometimes exceeds the number of cases reported, are, nevertheless, the best obtainable.

SMALLPOX. There was a total of 23,263 cases of smallpox in the United States, with 105 deaths. The States suffering most heavily were: California, 162 cases, 4 deaths; Colorado, 1465 cases, 1 death; Florida, 2231 cases, 6 deaths; Illinois, 368 cases; Indiana, 1014 cases, 3 deaths; Iowa, 849 cases, 5 deaths; Kansas, 1751 cases, 23 deaths; Louisiana, 432 cases, 3 deaths; Michigan, 719 cases, 6 deaths; Minnesota, 1049 cases, 2 deaths; Missouri, 527 cases, 3 deaths; Montana, 291 cases, 1 death; Nebraska, 320 cases; North Carolina, 3291 cases; North Dakota, 131 cases; New York, 151 cases, 1 death; Ohio, 583 cases, 1 death; Oklahoma, 1205 cases, 2 deaths; Oregon, 95 cases, 4 deaths; Pennsylvania, 140 cases, 1 death; South Dakota, 513 cases, 1 death; Tennessee, 573 cases, 4 deaths; Texas, 753 cases, 22 deaths; Utah, 1650 cases, 7 deaths; Vermont, 323 cases; Virginia, 892 cases; Washington, 906 cases, 2 deaths; Wisconsin, 316 cases.

Among foreign countries, considerable numbers of cases were reported from the following: Brazil, 253 cases, 2694 deaths; Canada, 789 cases, 4 deaths; Chile, 1350 cases, 43 deaths; China, 328 cases, 339 deaths; Great Britain, 328 cases, 15 deaths; India, 3032 cases, 1619 deaths; Indo-China, 671 cases, 144 deaths; Italy, 3395 cases, 1420 deaths; Philippine Islands, 235 cases; Russia, 2400 cases, 733 deaths.

YELLOW FEVER. No cases of yellow fever were reported in the United States during 1911. Other countries having cases are as follows: Barbados, 2 cases, 1 death; Brazil, 197 cases, 313 deaths; Ecuador, 313 cases, 138 deaths; Mexico, 45 cases, 20 deaths; Venezuela, 110 cases, 18 deaths.

CHOLERA. There were 22 cases of cholera in the United States, with 16 deaths, 18 of which were taken from incoming steamships in New York harbor, and detained in quarantine. There were many cases in Russia, Italy, and the East, distributed as follows: Arabia, 401 cases, 240

deaths; Austria-Hungary, 393 cases, 150 deaths; India, 672 cases, 2435 deaths; Indo-China, 232 cases, 145 deaths; Italy, 15,853 cases, 5949 deaths; Japan, 2793 cases, 1921 deaths; Java, 1323 cases, 1170 deaths; Madeira, 1711 cases, 585 deaths; Persia, 713 cases, 552 deaths; Philippine Islands, 424 cases, 326 deaths; Russia, 3696 cases, 1768 deaths; Siam, 1274 cases, 2341 deaths; Tunis, 4438 cases, 3845 deaths; Turkey in Europe, 4509 cases, 5635 deaths; Turkey in Asia, 4307 cases, 3352 deaths.

PLAGUE. Three cases and one death occurred in the United States, in California. In foreign countries the disease was distributed as follows: Arabia, 82 cases, 58 deaths; Brazil, 127 cases, 114 deaths; Chile, 97 cases, 52 deaths; China, number of cases not ascertainable, deaths reported as 68,000; Ecuador, 518 cases, 298 deaths; Egypt, 1610 cases, 1001 deaths; India, 881,187 cases, 734,111 deaths; Indo-China, 488 cases, 142 deaths; Japan (Formosa), 361 cases, 311 deaths; Java, 1209 cases, 462 deaths; Mauritius, 133 cases, 60 deaths; Persia, 125 cases, 98 deaths; Peru, 715 cases, 305 deaths; Russia, 170 cases, 231 deaths; Siam, 123 cases, 126 deaths; Turkey in Asia, 52 cases, 38 deaths.

BIRTH RATE. Many statistical reports during 1911 have dealt with the decline of the birth-rate in various countries. In New York State it was shown that the birth-rate was declining, particularly in the rural districts. For example, outside of the cities, in the month of March, 1911, there were 3745 deaths, and only 3275 births. During the same month, in cities of 10,000 or more inhabitants, there were 1398 births and 1237 deaths. As population becomes scantier, births and deaths approximate in number, until in third-class cities (those under 10,000) the births and deaths are exactly equal—45 each. It appears that the number of births varies directly with the proportion of foreign population. In New York City, where the foreign-born population is most numerous, the births exceeded the deaths by 4617; whereas, in the country, where the native population is largest, and where there are abundant opportunities for healthful living, in an estimated population of nearly 2,500,000, there were 470 more deaths than births.

In Prussia, on the contrary, the reverse appears to be the case. For the entire kingdom of Prussia there was a reduction in the ratio of fertility—that is, in the number of births from 1000 women capable of child-bearing, between the ages of 15 and 45; this ratio has declined from 174.60 in the quinquennium from 1876 to 1880 to 161.85 for 1896 to 1900, and 154.83 in the period from 1901 to 1905. In the cities, the ratio has declined from 160.64 to 129.12. In the rural districts, the ratio of fertility for 1876 to 1880 was 182.93, which figure was exceeded by a ratio of 183.06 for 1896 to 1900. The falling birth-rate in the cities occasions the marked diminution of the general fertility in Prussia. This phenomenon is especially notable in Berlin and the cities of the province of Brandenburg. The fertility ratio in Berlin sank from 149.21 in 1876 to 1880 to 88.78 in 1901 to 1905, a reduction of more than 40 per cent.

The results of a comparison of the census reports of Vienna for 1890, 1900, and 1910 were published. Vienna has now a population of over 2,000,000, of whom there died 34,000 in 1909, while the births numbered 43,854. The birth-rate of Vienna is constantly falling. In 1895,

it was 38 per 1000, in 1900, 31 per 1000, in 1905, 27, in 1910, 22. The figures for 1911 indicate a rate of 20. The death-rate also has a constant downward tendency. In 1895 it was 23 per 1000; in 1900, 20; and in 1910, 16.5. The actual decrease affected mostly the middle aged, while children up to 15 years have shown fairly constant figures. The large influx of persons in the prime of youth up to 30 is responsible for the increase in population, for the yearly increase was about 30,000, while the surplus over deaths was only 10,000.

British vital statistics tell the same story. During the third quarter of 1911 there were in England and Wales only 81,645 more births than deaths, as compared with 123,000 surplus in the third quarter of 1908, 124,054 in 1909, and 123,022 in 1910. A similar condition of affairs existed in Scotland, where the birth-rate for 1910 was 25.16 per 1000, the lowest figures ever recorded.

LONGEVITY. Some interesting tables showing the average length of life of the German people were published. From three mortality tables for the entire German people, the following average life duration was calculated: From 1871 to 1880, for men, 35.58 years; for women, 38.45. From 1881 to 1890, for men, 37.17; for women, 40.25. From 1891 to 1900, for men, 40.56; for women, 43.97. The average for men has risen five years in the last twenty years, that for women five and one-half years. Still, Germany is behind many other European countries. In Sweden, the average length of life is about ten years higher than in Germany; in Belgium and the Netherlands, about five years, and in France and England, about four years. The chief reason for this difference is believed to lie in the relatively high infant mortality of Germany.

VIVISECTION. The annual attempt on the part of the anti-vivisectionists to limit the use of animals for experimental purposes took the form in 1911 of a bill introduced into the New York legislature, which provided for the creation of a commission to inquire into the nature and practice of experimentation on living animals, and the state of the present laws regarding vivisection. This, the Bayne bill, was defeated decisively by a vote of 34 to 11, on the ground that adequate restrictions and abundant safeguards were already provided by existing laws.

VOCATIONAL EDUCATION. See EDUCATION.

VOLCANOES. The eruptions of Mount Etna in Sicily and Taal volcano in the Philippines during 1911 were the principal disturbances of the kind that have occurred since the period 1906-07, when activity was very general in the Mediterranean and Pacific volcanic regions. Mount Etna displayed unusual violence, compared with its other recent outbursts, and inflicted a great deal of damage upon the fertile, highly cultivated country that surrounds it. During the period of extreme activity, which lasted from September 10 to 17, it discharged immense quantities of lava and ash, laying waste many dwellings and cultivations, as well as causing important changes in the local topography. The largest lava stream flowed down the northeastern slope toward the Alcantara valley, and for a time threatened to engulf the towns of Castiglione and Francavilla, but did not actually reach that far. The stream, in its lower

part, was nearly one-third of a mile wide and about 50 feet thick. Several new craterlets were formed, and numerous earthquakes of the lighter sort accompanied the outbursts. The inhabitants of the devastated region secured their safety by timely flight, so that there was no serious loss of life.

Taal volcano, on the island of Luzon, about 60 kilometers south of Manila, broke its long period of quiescence on January 27, when it began erupting steam and ash. Three days later an outburst of explosive violence, the severest that has occurred in historic times, took place and laid waste an area estimated at 230 square kilometers, practically annihilating all life within that zone. Mud and ash were scattered over a much larger area. The number of fatalities was reported officially at 1335. The outburst on January 30 recalled the Mont Pelée disaster, as it was accompanied by a similar explosive rush of gases down the volcano's slopes, but owing to the fact that Taal lies in the middle of a lake the destructive effects of the blast were not so widespread. During the eruption a quantity of rock material estimated at from 70 to 80 million cubic meters was ejected.

A curious phenomenon which happened off the coast of Trinidad on November 4 gave rise to reports in the daily press that a new volcano had appeared in that vicinity. An island suddenly arose out of the sea and for a time sent a column of mud, water, and inflammable gases into the air. The disturbance, however, was not of deep-seated or igneous origin, but was caused undoubtedly by the release of hydro-carbon gases such as are included under the general name of natural gas, that were stored in the strata beneath the sea. The extensive asphalt accumulations and petroleum springs of Trinidad indicate the existence of these gases, which, under heavy rock pressure, may have forced their way to the surface to escape finally with explosive violence. The mud brought up from the sea bottom formed an island of two or three acres surface, rising 30 feet or more above water level. The flames that were reported as in evidence during a part of the disturbance may have been due to ignition of the gases by friction or electrical activity generated by their forceful issue.

VOLZ, W. See **EXPLORATION, Asia.**

VOORHEES, EDWARD BURNETT. An American agricultural chemist and educator, died June 6, 1911. He was born at Mine Brook, N. J., in 1856, and graduated from Rutgers College in 1881. He was assistant to the professor of chemistry in Wesleyan University in 1881-2, and from 1882 to the time of his death was connected with the New Jersey Agricultural Experiment station as chemist, assistant chemist, and director. From 1896 he was also director of the New Jersey Agricultural College Experiment station, and was professor of agriculture at Rutgers College from 1890, acting also as superintendent of the New Jersey Agricultural College farm. He was a member of many agricultural and chemical societies. In 1902 he received the Nichols research medal for the best paper containing results of chemical research reported to the American Chemical Society *Journal*; his subject was "Dentrification." He was the author of *First Principles of Agriculture* (1895), *Fertilizers* (1898), *Forage Crops* (1907), as well as many bulletins and magazine articles on agricultural topics. He lectured before farmers' in-

stitutes and other agricultural and horticultural societies in the Eastern States.

VON DER TANN. See **BATTLESHIPS.**

VYERNY. See **EARTHQUAKES.**

WADAI. See **FRENCH EQUATORIAL AFRICA.**

WAGES, MINIMUM. Alongside various movements for industrial betterment has developed a movement for the establishment of a legal minimum for the rates of wages in industries employing great numbers of women, children, or unskilled workers. It has come to be believed that the payment of starvation wages is a prolific cause of poverty and degeneracy. The advocates of a legal minimum wage hold that some industries are in fact parasitic and predatory, since the wages paid must be supplemented by public and private charity. Since 1894 the boards of arbitration in New Zealand have fixed wages in a variety of industries. In that country the boards of arbitration and arbitration courts have fixed the minimum wage at a fairly high level. They, however, grade the wages of each trade so as to permit the employment of a few low-grade workers at less than the general minimum. Experience there shows that while the establishment of such a minimum wage brings about some uniformity, nevertheless the degree of uniformity is not so great as was expected by the opponents of the measure. This system does, however, make wages rigid. On the other hand, the minimum-wage principle has banished sweating. In Australia minimum-wage boards may be established for each trade, representatives being nominated by employers and by employees, and appointed by the commissioner of labor, who also appoints a chairman. These boards fix not only the wages, but other conditions of employment. The Australian principle is that wages should be high enough to afford a living standard, otherwise the industry should be given up. Moreover, in Australia effort has been made to guarantee to the workers the benefits of the protective tariff, by enforcing a correlation between the wages of an industry and the rate of protection. For the minimum wage movement in the United States see **WOMEN IN INDUSTRY.**

GREAT BRITAIN. Under the Trade Boards act of 1909, which authorized the formation of special boards in the lace-making, box-making, chain-making, and tailoring industries, boards were organized in the first three of these three trades in 1910. Finally, late in 1911, a minimum-wage board was organized and established wages in the fourth of these sweated industries. The rates established in the men's clothing industry were a minimum of 4s. 10d. per week for women, and 25s. 6d. for men. The vast majority of women tailors had previously received less than this minimum. It was reported that about 25 per cent. of the women employed in shops earned less than 10d. per week, while those doing home work earned even less. The rates established for the tailoring trades were expected to affect several hundred thousand workers; the rates established in the earlier industries affected some 30,000 persons.

TRADE AGREEMENTS. The minimum-wage movement is usually thought of as the movement for the fixing of minimum rates of pay by some public authority. In addition to this legal minimum wage there goes on the establishment of minimum rates by means of agreements between employers and employees. Thus, in the coal-mining industry in Great Britain a

most stubborn and bitter fight was carried on over the fixing of minimum rates of pay. This was the chief cause of the strike in South Wales. (See **STRIKES AND LOCKOUTS**.) The miners pointed out that many of them are employed in abnormal situations, either on narrow veins or in other situations making impossible a normal output. A special conference in January decided to press for an average or minimum rate of wages in all districts. The mine owners refused to pay full wages for less than normal production. District conferences were held at many points, and finally a national joint conference of miners and owners was held in September. No settlement was reached, although the owners admitted that miners working in abnormal places had a real grievance. Meanwhile demand was put forward for a guaranteed minimum daily wage for all mine workers. The minimum demanded varied around 5s. (\$1.25) per day. At the miners' conference in October it was resolved "to take immediate steps to secure a minimum wage for all men and boys, without any reference to the working places being abnormal." A special conference in November decided to negotiate further before taking the action of a general national strike. A still further conference, December 20, reported that in nearly every district the owners were unwilling to concede the high minimum demanded. The conference then resolved to take a ballot of all full union members on the question whether a national strike to enforce the question of a guaranteed minimum wage should be ordered. If favored by the requisite two-thirds majority a strike seemed probable about March 1. Similarly the strike of the seamen and dockmen throughout Great Britain in the summer of 1911 was due to the demand for the establishment of a minimum rate of pay. (See **STRIKES**.) This strike was successful and resulted in the establishment of a fair minimum rate of pay for more than 100,000 men.

OTHER METHODS. The railway strikes in France in 1910 were due in part to the demand by the employees for a minimum wage of \$1 per day. Such a rate was established early in 1911 through the intervention of the government. The establishment of minimum wages by means of trade agreements is possible only where the workers are well organized. Nothing could more clearly demonstrate the value of organization among the unskilled workers than the successful termination of the great strikes of seamen and dockmen in the summer of 1911. In July the Independent Labor party of Great Britain opened a campaign for 30s. per week for all adult workers, accompanied by a reduction of working hours. This was favored by a conference at Bradford in July, attended by 400 delegates, representing about 200 socialist societies and trade unions in Yorkshire. Thus we see a variety of methods of accomplishing the minimum wage: direct establishment by a government board; trade agreements between organized workers and employers; trade agreements brought about through the intervention of a governmental agency; and, finally, the political pressure of labor parties.

WAGES AND COST OF LIVING. See **PRICES**.

WAGNER, RICHARD. See **LITERATURE, ENGLISH AND AMERICAN, General Biography**.

WALKER, Sir SAMUEL. An Irish jurist, lord

chancellor of Ireland, died August 13, 1911. He was born in Goreport, Ireland, in 1832. He was educated in Trinity College, Dublin. He was called to the bar in 1855 and at once entered upon a career of uninterrupted success. In 1883 he was appointed solicitor-general for Ireland, and two years later was advanced to the office of attorney-general. When the split occurred in the Liberal party after the introduction of the Home Rule bill, he took a stand with the Liberal Home Rulers. With the return of the Gladstone party to power in 1892 he was appointed lord chancellor of Ireland. On the return to power of the Unionist government in 1895 he was made a lord justice of appeal, an office which he continued to hold until 1905, when he became for a second time lord chancellor. He was created a baronet in 1906.

WALLA WALLA (WASH.). See **MUNICIPAL GOVERNMENT**.

WALLIS ARCHIPELAGO, THE. A dependency of New Caledonia (q. v.).

WARD, ELIZABETH STUART (PHELPS). An American author and lecturer, died January 28, 1911. She was born in Boston in 1844, the daughter of Rev. Austin Phelps, and granddaughter through her mother of Rev. Moses Stuart, who was one of the most eminent members of the faculty of Andover Theological Seminary when that institution was at the height of its influence. Her father was also a professor at Andover and she lived with him in that town for many years. She began to write when she was thirteen years of age and when she was twenty-four wrote the book which first brought her into prominence, *The Gates Ajar*. This went through twenty editions within a year of its publication. At this time and for many years thereafter she devoted herself to writing and to the social betterment of the people of Andover. *The Gates Ajar* was followed by two others, *Beyond the Gates* and *The Gates Between*. In 1898 she was married to Herbert D. Ward, who was at that time professor of Latin and Greek at Talladega College. After his marriage, however, he also adopted a literary career. Previous to the publication of *The Gates Ajar* Mrs. Ward had published the Gipsy series in four volumes. In 1869 appeared *Men, Women and Ghosts*, and this was followed by a succession of novels, of which the best known are *Hedged In* (1870); *The Story of Avis* (1877); *Old Maids and Burglars in Paradise* (1885); *Madonna of the Tube* (1886); *A Singular Life* (1894); *Within the Gates* (1901); *Walled In* (1907); *Jonathan and David* (1909); *The Oath of Allegiance* (1909), and *Comrade, 1911*. She also wrote a volume of reminiscences dealing chiefly with her early life at Andover. Of late years she wrote many short stories which appeared in the leading magazines.

WARD, Mrs. HUMPHRY. See **LITERATURE, ENGLISH AND AMERICAN, Fiction**.

WARDWELL, WILLIAM THOMAS. An American capitalist and philanthropist, died January, 1911. He was born at Bristol, R. I., in 1827. He was educated as a chemist and began refining oil in Long Island. The company which he founded was successful until the formation of the Standard Oil Company, when it was taken over and Mr. Wardwell became associated with that company. He was the originator of the employees' pension system of that corpora-

tion. He took great interest in public affairs, especially in the prohibition of liquor. In 1886 he was Prohibition candidate for mayor of New York City. He was associated with the Red Cross Hospital Association from the time of its founding. In 1897, when the association was facing ruin, he came to the rescue with a gift. He later contributed \$100,000 toward a new building for the association and up to the time of his death made up the monthly deficit of the hospital. At the time of the Spanish War he was appointed a member of the commission to establish the National Red Cross Committee. He was at one time the treasurer of the Standard Oil Company. He was Prohibition candidate for governor of New York in 1900.

WARE, EUGENE F. An American public official and poet, died July 2, 1911. He was born in Hartford, Conn., in 1841. His parents early removed to Iowa and he was educated in the public schools of Burlington. He served throughout the Civil War and was mustered out as captain in the Seventh Iowa Cavalry. He was admitted to the bar in 1871. From 1879 to 1884 he was a member of the Kansas Senate. From May 10, 1902 to January 1, 1905, he was United States commissioner of pensions. On his resignation from this office he again practiced law in Kansas City, Kan. Mr. Ware was well known as a poet under the name of "Ironquill." For years he contributed his verses to newspapers, principally in Kansas. These verses, published in a volume entitled *The Rhymes of Ironquill*, reached thirteen editions. He published also other books of verse. He was also the author of *The Rise and Fall of the Saloon* (1900), *The Lyon Campaign and History of the First Iowa Infantry* (1907), *The Indian Campaign of 1864* (1908), *Ithuriel*, (1909), and *From Court to Court* (1909). He translated *The Roman Water Law* from the Latin of Justinian and was a contributor to legal and literary publications.

WARNER, JAMES D. An American mathematician and engineer, died March 12, 1911. He was born in Saratoga county, N. Y., in 1846. In 1862 he moved to New York City and became active in Republican politics. He was one of the original surveyors for the Erie Railroad and was the leading engineer in the construction of the Kansas-Pacific Railroad. He was for many years one of the best known engineers of the United States. He was a member of several learned societies, both in the United States and in foreign countries.

WASDIN, EUGENE. An American surgeon, died November 16, 1911. He was born in 1869. He became a well-known authority in yellow fever and was decorated by the king of Italy in recognition of his researches in suppression of that disease in Italy. As a surgeon of the United States Marine Hospital Service, he was stationed at Buffalo when President McKinley was shot in that city in 1901. He was one of the surgeons who operated on President McKinley and attended him during his illness.

WASHINGTON. POPULATION. The Thirtieth Census showed a population in 1910 of 1,141,990, compared with 508,103 in 1900, an increase of 120.4 per cent. in the decade. This is the largest percentage of increase shown in any State in the period. The principal cities with their populations in 1910 and 1900 are given below (the figures in parentheses are for 1900): Seattle, 237,104 (80,671); Spokane, 104,462 (36,

848); Tacoma, 83,743 (37,714); Everett, 24,814 (7838); Bellingham, 24,298 (11,062); Walla Walla, 19,364 (10,049); North Yakima, 14,082 (3154); Aberdeen, 13,660 (3747).

AGRICULTURE. The Thirtieth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the number of farms in the State was 56,192, compared with 33,202 in 1900. The land in farms was 11,712,235 acres, compared with 8,499,297 in 1900. The improved land in farms was 6,373,311 acres, compared with 3,465,960 in 1900. The average acreage per farm was 208.4, compared with 256 in 1900. The value of all farm property, including land, buildings, implements and machinery, domestic animals, poultry, and bees, was \$637,543,411, compared with \$144,040,547 in 1900, an increase of 342.6 per cent. in the decade. The average value of all property per farm was \$11,346, compared with \$4338 in 1900. The average value of land per acre was \$44.13, compared with \$11.68 in 1900. The farms operated by owners and managers numbered 48,466 and those operated by tenants, 7726. Of the farms operated wholly or in part by owners, those free from mortgage numbered 309,796 and those under mortgage, 16,026. The native white farmers numbered 37,770; foreign-born, 17,297; negro and other non-white, 1125. Of the non-white farmers 316 were Japanese, 77 negroes, 59 Chinese, and 673 Indians. The domestic animals of all kinds in 1910 were valued at \$48,865,110 in 1910, compared with \$22,159,207 in 1900. The cattle numbered 402,120, valued at \$12,193,465; horses and colts, 280,572, valued at \$29,680,849; mules 12,185, valued at \$1,776,297; swine 266,135, valued at \$1,674,927; sheep 475,555, valued at \$1,931,170. The poultry of all kinds numbered 2,272,775, valued at \$1,367,440. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

		Acreage	Prod., bu.	Value
Corn	1911	30,000	855,000	\$675,000
	1910	28,000	784,000	588,000
Wheat	1911	2,230,000	50,661,000	35,969,000
	1910	2,101,000	35,571,000	27,746,000
Oats	1911	281,000	14,528,000	6,538,000
	1910	275,000	11,770,000	5,650,000
Rye	1911	8,000	176,000	141,000
	1910	6,000	123,000	109,000
Potatoes ..	1911	59,000	9,440,000	6,419,000
	1910	56,000	7,336,000	5,355,000
Hay	1911	400,000	a 960,000	11,520,000
	1910	388,000	815,000	12,796,000
a Tons.				

MINERAL PRODUCTION. The State produces a considerable amount of gold and silver. The gold production in 1910 was 38,126 fine ounces, valued at \$788,145. In 1911 it was 24,407 fine ounces, valued at \$504,537. The silver production in 1910 was 205,345 fine ounces, valued at \$110,886. In 1911 it was 142,196 fine ounces, valued at \$78,209. The State produces copper in small quantities. In 1910 the output was 65,021 pounds, as compared with 120,611 pounds in 1909.

EDUCATION. The whole number of children of school age in the State on May 1, 1911, was 276,244. The total enrollment in the public schools was 220,461. The average daily attendance was 163,021. The teachers employed numbered 7589, of whom 6111 were female and 1478 male. The average monthly salary for

male teachers was \$85.69, and for female teachers, \$66.25.

FINANCE. The report of the State treasurer for the year ended December 31, 1911, showed a balance on hand January 1, 1911, of \$936,251. The receipts during the year were \$7,974,096, and the disbursements, \$7,830,869, leaving a balance at the end of the year of \$1,129,478. The assessed valuation of personal and real property in 1911 was \$812,563,222. The assessment of steam railways was \$132,458,414, and of electric railways, \$19,673,082.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State with population in 1911 are as follows: Western Washington Hospital for the Insane, Steilacoom, 1454; Eastern Washington Hospital for the Insane, Medical Lake, 807; Institution for the Feeble-Minded, Medical Lake, 158; State Soldiers' Home, Orting, 670; Washington Veterans' Home, Port Orchard, 187; Soldiers' Colony, 666; State School for the Deaf, Vancouver, 109; State School for the Blind, Vancouver, 39; State Penitentiary, Walla Walla, 901; State Training School, Chehalis, 572; and State Reformatory, Monroe, 288.

The State institutions are under the management of the State Board of Control, composed of three members. At the 1911 session of the legislature a bill was introduced providing for the better management of both State and private charitable and correctional institutions in which a plan of government modeled after the Illinois State Board providing for both fiscal and expert management was presented. While this bill failed of passage, the way was paved for a successful presentation of the matter later. This State is well in the front not so much in the State institutions already provided as in the laws enacted seeking to prevent poverty and the increase of institutions for the care of the poor or unfortunate. The Employers' Liability act is proving efficient and will tend to decrease deaths by accident and the number of dependants from this cause. The children of the State are well looked after through the juvenile courts, the Washington Children's Home Society, and the Orthopedic Hospital, the latter two being private charities.

POLITICS AND GOVERNMENT

The legislature met in 1911 and the most important measures enacted will be found noted in the paragraph *Legislation*, below. On January 17, the legislature elected Miles Poindexter United States senator, to succeed Senator Piles. Senator Poindexter received the nomination at the primaries in 1910. He is identified with the Progressive wing of the Republican party. The chief political interests in the State in 1911 centred about the elections held in Seattle and Tacoma under the provisions of the recall.

In December, 1910, signatures of 9626 persons were obtained to a petition calling for a recall of the mayor of Seattle, Hiram C. Gill. In accordance with the provisions of the law providing for a recall, the city council ordered a special election to be held in February. The charges made against the mayor were incompetence and unfitness; abuse of the appointive power by selecting, for political and personal reasons, men unfit for office; failure, refusal, and neglect to enforce the criminal laws of the

city; permitting the city to become a home and refuge for criminal classes; failure to enforce impartially the laws and ordinances; and that his continuance in office was a menace to the business enterprises and moral welfare of the city. Shortly before the council had taken this action the mayor applied to Judge Albertson of the Superior Court for King county for an injunction restraining the city officials from proceeding with the recall election. He alleged that signatures to the petition had been fraudulently obtained and he charged also that there were defects in the law providing for the recall and technical irregularities of various kinds. Judge Albertson refused to grant the injunction. Supporters of Mayor Gill then applied to Judge Hanford of the United States Circuit Court in the name of a citizen, a resident of Illinois, alleged to own property and pay taxes in Seattle, claiming that his taxes would be increased by reason of the expense of a recall election, and that as the election was illegal, he was entitled to the protection of the court. Judge Hanford granted an injunction, not restraining the city from holding the election, but restraining the city comptroller from paying out any money or from issuing any warrants on account of election expenses. The corporation counsel and the attorney for the Public Welfare League immediately applied to Judge Gilbert of the United States Circuit Court of Appeals at Portland, Ore., for a writ overruling Judge Hanford's decision. This Judge Gilbert issued, but required the city to file a bond of \$15,000 and set a date for a further hearing. Two days later Mayor Gill's attorneys appeared before Judge Hanford and consented that the case should be dismissed, thus leaving the city free to proceed with the election.

In the election held on February 11, 1911, Mayor Gill was displaced by George W. Dilling. The vote for Mr. Dilling was 31,919, as against 25,705 for Mr. Gill. The total majority for a change in the city government was 10,912. A few months later an attempt was made to recall Mayor Dilling; petitions were filed on August 17 and 24 with an aggregate of 9048 names. The women's vote was responsible for Mr. Gill's recall and with the increased electorate due to this vote, the names on the Dilling recall petition fell below the percentage required to make it effective. An attempt was made at the same time to recall three of the councilmen.

Following the recall Seattle held a general election on March 7. At this time the charter amendment, adopted the previous year, establishing the non-partisan primary and abolishing the ward system of representation, became effective. The council of eighteen, fourteen from as many wards and four at large, was reduced to nine at large. All members of the old council and fifty additional persons were candidates for the new council. The sixty-eight candidates were sifted by a large citizens' committee initiated by the Municipal League, and guided by the committee's report the voters were enabled to eliminate the undesirable aspirants. The new council proved an improvement over the old.

The provision for the recall of the mayor was put into effect also in Tacoma, where the incumbent of that office was charged with incompetency. As great engineering contracts, includ-

ing the municipal hydro-electric power plant, costing \$1,700,000, were to be undertaken, it was felt by the citizens that the officer who should have general charge of this work should be a stronger man than the mayor had proved himself to be, and an election was held on April 4 for the nomination of candidates. William W. Seymour received 1300 more votes than were cast for the mayor for reelection, but these were not sufficient to give him a majority over all the candidates. Another election was held several weeks later in which Mr. Seymour received a sufficient number of votes for nomination.

The anticipated commercial importance of the Panama Canal to Washington was shown by the fact that six Atlantic steamship companies conducted negotiations for docking facilities at Tacoma and Seattle. Movements were on foot to provide municipal ownership of terminals for all steamships not having direct railway connections. Tacoma leased from the State a large harbor area and acquired a large area of tide lands, through the centre of which channels will be dredged. Two large bridges are being built by the city across the existing waterways. Seattle with King county was the first to take advantage of the new port districting law, and in September created the separate municipality known as the Port of Seattle with Gen. H. M. Chittenden (U. S. A. Engineers, retired), C. E. Remsburg, and Robert Bridges as commissioners without compensation.

A number of the smaller cities of 20,000 or less availed themselves of a new State law and adopted short ballot charters.

The Public Service Commission rendered a far-reaching decision in the case of the Independent Telephone Company against the city of Seattle. The telephone company, ignoring its franchise agreement with the city, applied for an advance in its rates. The commission considered the showing of the company sufficient and, in the exercise of the police powers of the State, granted the increase. The case was carried to the Supreme Court.

Architects were selected in national competition and their plans for a \$6,000,000 capitol layout, on the unit system, were adopted by the State. The first unit, Temple of Justice, will be erected in 1912.

LEGISLATION. The important measures enacted at the legislative session of 1911 include the following: Cities of the first class are allowed to provide in their charters for the recall of elective officers, and the initiative and referendum. Cities with such charter powers may provide for nominations for such recall elections by certificate of nomination signed by not less than five per cent. of the votes cast for the incumbent against whom the recall is directed. A constitutional amendment for the recall of all elective officers, except judges of courts of record, is to be submitted to vote at the general election of 1912. The hours of employment for women in mechanical, mercantile, or industrial establishments are limited to eight hours a day except in the harvest and canning industries. Proposed amendments to the constitution for the initiative and referendum are to be submitted to public vote at the election in November, 1912. Provision was made for the enactment of an insurance code systematizing and safeguarding the insurance

business of the State. Provision was made for the compensation for injury by the creation of a commission of three to be appointed to pass on all claims of this character. This commission is to award damages according to schedule of compensation fixed in the act. All defenses, except that of intentional injury of the workman himself, are abrogated. The funds are provided by assessments levied upon the different industries, based upon the payroll for the previous years. A measure was enacted providing for the nomination and election of judges of courts of record, original and appellate, on a non-partisan judiciary ticket. The smaller cities of the State are authorized to govern themselves under the commission plan. A public service commission of three persons was established, with general supervisory and regulating power over all service companies. Provision was made for the protection of forests from fires.

STATE OFFICERS. Governor, M. E. Hay; Secretary of State, I. M. Howell; Treasurer, John G. Lewis; Auditor, C. W. Clausen; Superintendent of Education, Henry B. Dewey; Attorney-General, V. W. Tanner; Commissioner of Public Lands, E. W. Ross—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, R. O. Dunbar; Associate Justices, O. G. Ellis, H. D. Crow, M. A. Fullerton, W. Mount, M. F. Gose, S. J. Chadwick, George E. Morris, and Emmett N. Parker—all Republicans, except Chadwick; Clerk, C. S. Reinhart.

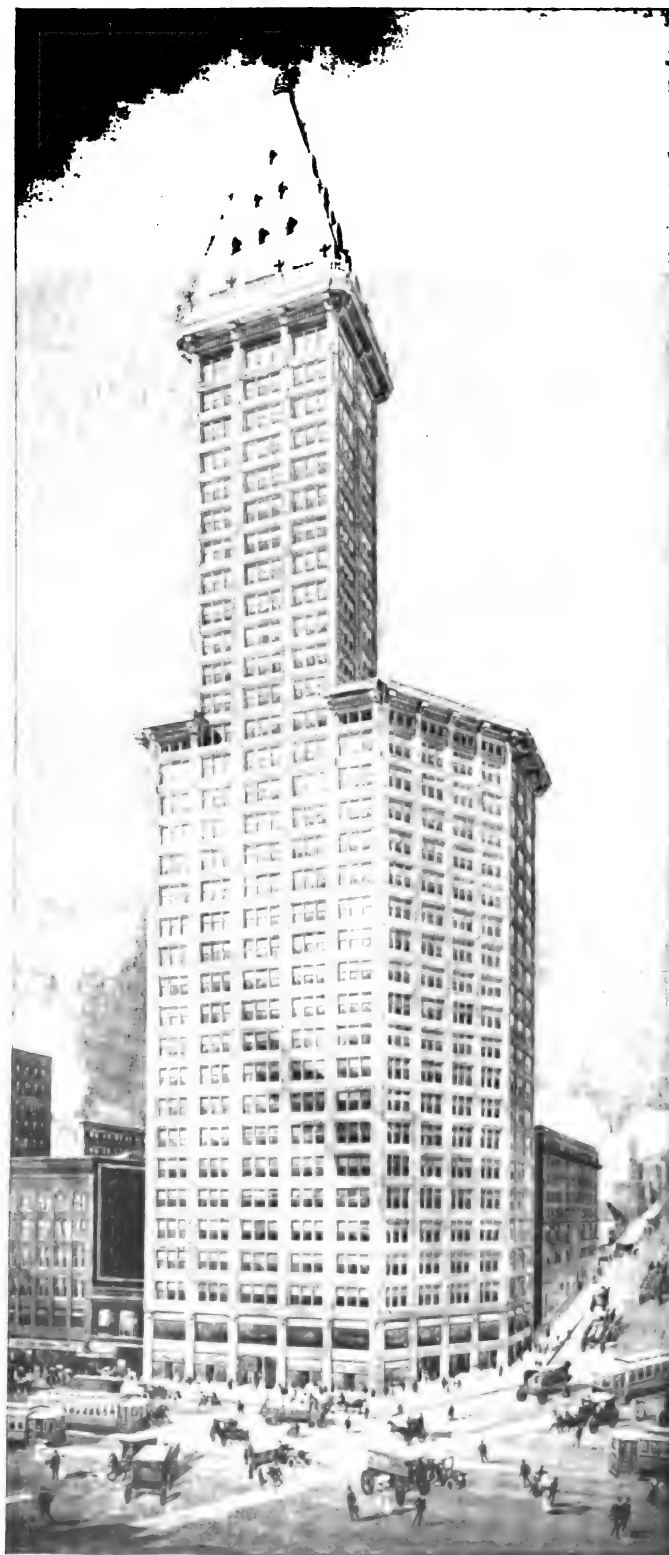
STATE LEGISLATURE, 1911. Republicans, Senate, 38; House, 84; joint ballot, 122; Democrats, Senate, 4; House, 12; joint ballot, 16. Republican majority, Senate, 34; House, 72; joint ballot, 106.

The representatives in Congress will be found in the article UNITED STATES, section Congress.

WASHINGTON, BOOKER T. See LITERATURE, ENGLISH AND AMERICAN, *General Biography*.

WASHINGTON, UNIVERSITY OF. An institution of higher learning at Seattle, Wash., founded in 1862. The students enrolled in the various departments of the university in 1911-12 numbered 2427. There were 128 members of the faculty. During the year Edgar B. Sheridan was appointed to succeed Merle Thorpe as head of the department of journalism. Irving M. Glen was appointed to succeed C. O. Kimball as head of the department of music, and Arthur Sewall Haggett, Ph. D., was appointed to succeed Arthur R. Priest as dean of the college of arts and sciences. Eighteen additional instructors were appointed in June, 1911. Among the benefactions received during the year was the endowment of \$30,000 to establish a bureau of child welfare. Two new courses were added, a course in library training and a course in music leading to the degree of bachelor of music. Provision was also made for graduate courses leading to the doctor's degree. Graduate work is regularly offered in only one department for the first year. The productive funds of the university amount to about \$3,000,000. There was appropriated for its support by the State in 1911-12 \$400,000. The library contains about 45,000 volumes. President, 1911, Thomas F. Kane.

WASHINGTON UNIVERSITY. An institution of higher learning at St. Louis, Mo., founded in 1853. The students in all depart-



THE L. C. SMITH BUILDING, SEATTLE, WASHINGTON
A FORTY-TWO STORY SKYSCRAPER, GAGGIN AND GAGGIN ARCHITECTS

ments in the year 1911-12 numbered 1173. Of these 517 were in the college; 191 in the schools of engineering and architecture; 36 in the school of social economy; 78 in the law school; 108 in the medical school; 89 in the dental school; and 154 in the school of fine arts. The faculty numbered 199. Noteworthy changes in the faculty during the collegiate year were the appointment of Monsieur Charles Abella of Paris as professor of design in the school of architecture; and the appointment of full-time professors in the medical school as the result of the entire reorganization of that school. An affiliation has been made with the Barnes Hospital and the St. Louis Children's Hospital which permits these institutions to be used for teaching purposes. The productive funds of the university amount to \$7,715,334. The income from the productive funds is \$311,855, and the entire total income \$532,881. The library contains about 110,000 volumes. Chancellor, 1911, David F. Houston.

WATCH TRUST. See TRUSTS.

WATER COLOR CLUB. See PAINTING.

WATER COLOR SOCIETY. See PAINTING.

WATER POLLUTION. See SANITATION.

WATER POWER. The tendency in large hydro-electric stations is to employ as large units as is possible. The Pacific Coast Power Company during the year was installing Francis turbines of 20,400 horsepower rating, and units of similar size were being provided for other large hydro-electric plants. In the main, however, no radical developments in hydro-electric turbines and water wheels were reported during the year, but progress was being made in details of design, and in attempts to secure better governing.

WATER PURIFICATION. Water disinfection by means of calcium hypochlorite (bleaching powder or chloride of lime) has been adopted by many American cities within the past three years or so, either as an emergency measure at a time of a typhoid outbreak attributed to unusual water pollution or as a more permanent, though perhaps still temporary measure, pending the building of slow sand or mechanical filters or the provision of a supply from a new source. In a number of instances disinfection is used to supplement filtration works.

Other means of disinfection, the use of which is thus far confined chiefly to Europe, are ozone and ultra-violet rays. The use of the latter has thus far scarcely gone beyond the experimental stage, although some small plants on a working scale were reported in practical, everyday use in 1911. Ozone treatment, older by a few years, is in wider use and on a larger scale than ultra-violet rays, but it can scarcely be said to be in general commercial use. An ozone plant with a daily capacity of 13,000,000 gallons was reported in 1911 as having been put in use to treat the water supply of St. Petersburg, Russia. As at most, if not all, ozone plants, it is necessary to pre-filter the water. For this purpose 38 mechanical filters, using sulphate of alumina as a coagulant, are employed. The drawback to the use of ozone is its own high cost and the fact that the water must have preliminary treatment, also at considerable expense, unless it is already remarkably free from organic matter. At some of the plants where ozone has been used the water to

which the ozone was applied was already nearly free from bacteria, thus making further treatment approach the nature of a "counsel of perfection."

A new slow sand filtration plant was about ready for use at Toronto, Ont., at the close of 1911, while on November 21, 1911, Philadelphia, Pa., was wholly supplied with filtered water for the first time. The combined daily capacity of the five plants at Philadelphia is 385,000,000 gallons. The water is treated by slow sand filtration, but most of it pre-filtered at a rapid rate before going to main filters.

Two small sand filtration plants have recently been installed at Gloucester, Mass., for the unique purpose of purifying water used in curing fish by the great fish companies in the city. This came about through an investigation to determine the cause of the "reddening" of salt-cured fish. It was concluded that the cause was *Odium morrhue*, a moldlike fungus, which gained access to and infected the fish through the use of polluted harbor water for washing the fish. (See *Bulletin 133*, Bureau of Chemistry, United States Department of Agriculture, for an account of this and other phases of the fish industry, and *Journal of the New England Water Works Association* (Boston, 1911) for a description of the filters.) The same publication contains a suggestive paper, entitled: "Has the Time Come for Double Municipal Water Supplies? One Naturally Pure for Drinking and Cooking; the Other Denaturated, for all other Purposes," by Prof. William T. Sedgwick and H. P. Letton.

WATER SUPPLY. See AQUEDUCTS.

WATERS, RUSSELL JUDSON. An American banker, formerly representative to Congress from California, died September 26, 1911. He was born in Halifax, Vt., in 1843, and was educated at the Franklin Institute. He learned the trade of machinist, and taught school for several years. He was admitted to the bar in 1868 and practiced in Chicago until 1886, when he removed to California, where he founded the city of Redlands. In 1894 he removed to Los Angeles and was elected to the Fifty-sixth Congress in 1899 as a Republican. He was president of several banking institutions and was interested in many financial enterprises in California. He was the author of *Lyric Echoes* (poems) and *El Estranjero*.

WATSON, CLARENCE WAYLAND. United States senator (Democrat) from West Virginia. He was born in Fairmont, W. Va., in 1864, and was educated in the public schools. While still a youth he engaged in the coal mining industry, in which his father, the late James Otis Watson, was the pioneer in the State. In July, 1908, he was a delegate from the first district of West Virginia to the Democratic national convention. He was elected United States senator by the legislature on January 25, 1911, to fill the unexpired term of Senator Elkins, deceased. His term of service expires in 1913.

WAYWARD CHILDREN. See JUVENILE COURTS.

WEBB, ALEXANDER STEWART. An American soldier and educator, died February 12, 1911. He was born in New York City in 1835 and graduated from the United States Military Academy in 1855. He was assigned to the artillery arm of the service and on the outbreak of the Civil War was appointed captain of the 11th infantry. He was later made major

of the first Rhode Island infantry and served as assistant chief of artillery in the Army of the Potomac and inspector-general of the fifth army corps. In 1863 he was promoted to brigadier-general of the United States Volunteers. For the year following he commanded the second division of the second army corps. He served with distinction at Gettysburg and was wounded in that battle. He also took part in the battles of the Wilderness. He was severely wounded at Spottsylvania in 1864. He was awarded the congressional medal of honor for distinguished personal gallantry in the battle of Gettysburg in 1863. He was assigned major-general of United States Volunteers by President Lincoln. He was chief of staff of the Army of the Potomac at the time of the surrender of General Lee, and until May, 1866. He was lieutenant-colonel of the 44th infantry and afterwards served in the same grade with the 5th infantry. In 1869 he was appointed to the brevet rank of major-general in the volunteer and regular army. In the same year he was appointed by President Grant major-general in command of the first military district, State of Virginia. He was discharged at his own request in December, 1870. In 1869 he was chosen president of the College of the City of New York and this position he filled for over thirty-three years. In 1903 he was retired and pensioned by the State law. During the period of his administration the College of the City of New York was evolved from an institution of secondary importance into one of the most efficient educational factors in the country. He wrote on the Civil War and other subjects, and his most important literary production was *The Peninsula—McClellan's Campaign of 1862*.

WEEKS BILL. See FORESTRY.

WEI-HAI-WEI. A territory about forty miles east of Chifu on the Shantung promontory, leased to Great Britain by China by a convention signed at Peking, July 1, 1898. With the town and harbor Great Britain acquired also the island of Liu-Kung and all other islands and waters in the bay, together with a strip of territory ten miles wide along the coast. The area is 285 miles and the population about 150,000. The sphere of British (military) influence covers 1500 sq. miles. The territory is administered by a commissioner (1911, Sir J. H. Stewart Lockhart), under the Colonial Office, residing at Port Edward on the mainland.

WELFARE WORKS. See UNITED STATES STEEL CORPORATION.

WELLS, CATHERINE BOOTT (Mrs. KATE GANNETT WELLS). An American author, died December 13, 1911. She was born in England in 1838. In 1863 she married Samuel Wells. Her father was the Rev. Ezra Stiles Gannett, who was for many years pastor of the Arlington Street Church in Boston. She was a contributor to newspapers and gave much study to normal methods of instruction in Sunday school manuals of ethics. She served three terms of eight years each as a member of the Massachusetts State Board of Education. Among her published works are: *In the Clearings*, *Miss Curtis*, *Two Modern Women*, *Little Dick's Son*, and a volume of essays, entitled *About People*.

WELLS, DAVID COLLIN. An American economist and educator, died June 12, 1911. He was born at Fayetteville, N. Y., in 1858 and graduated from Yale College in 1880. He studied at Union Theological Seminary and at Andover

Theological Seminary, graduating from the latter institution in 1885. In 1886-7 he studied in Germany. From 1887 to 1890 he was instructor in Phillips Academy, Andover, Mass. He was appointed professor of history and political science at Bowdoin College in 1890, serving until 1893. From that year to the time of his death he was professor of sociology at Dartmouth College. He was a member of several American and foreign learned societies and was advisory editor of the *American Journal of Sociology*.

WELLS, H. G. See LITERATURE, ENGLISH AND AMERICAN, *Fiction*.

WELLESLEY COLLEGE. An institution for the higher education of women at Wellesley, Mass., founded in 1875. The students enrolled in all departments of the college in 1911-12 numbered 1418. The teaching force numbered 122. The most important event in the history of the college during the year was the elevation of the associate professor of mathematics, Miss Ellen F. Pendleton, to the presidency to succeed President Hazard, who resigned in 1910. During the year \$52,500 was received as gifts. Of this amount \$45,000 was from the bequest of John Stewart Kennedy. The library contains about 70,000 volumes.

WERNER'S THEORY. See CHEMISTRY.

WERTHEIMER, CHARLES. An English art dealer and connoisseur, died April 25, 1911. He was born in London, where his father was an art dealer. From early youth he traveled over the continent of Europe in search of rare objects of art. His transactions were always on a large scale. He bought only the finest things in the way of pictures, jewels, and works of art. Among the notable objects purchased by him was the Gabbittas Biberon of rock crystal, for which he paid over \$75,000 in 1905. He also purchased Hoppner's "Lady Louisa Manners" in 1901. For this he paid over \$90,000, which at that time surpassed all known records for a picture. He was perhaps the best known art dealer in Europe at the time of his death.

WESLEYAN METHODIST CONNECTION OF AMERICA. A Protestant evangelical denomination of Methodist principles, which was founded in 1843 by members of the Methodist Episcopal Church, who strongly opposed the institution of slavery. The denomination numbered in 1911 about 19,000 communicants, 605 churches, and 598 ministers. The church property is valued approximately at \$650,000. Among the educational institutions maintained are Houghton Seminary at Houghton, New York, Miltonvale College, at Miltonvale, Kansas, and Central College at Central, S. C. The official paper of the denomination is the *Wesleyan Methodist*, published at Syracuse, N. Y. The highest authority of the church is the Quadrennial General Conference, which met in October, 1911, at Fairmount, Ind. This session changed the month of the Quadrennial meeting from October to June. The denomination has two important missionary fields, one in Sierra Leone, West Africa, and one in India.

WESLEYAN UNIVERSITY. An institution of higher learning at Middletown, Conn., founded in 1831. The number of students enrolled in 1911-12 was 390. The faculty numbered 97. There were no notable changes in the faculty during the year and no noteworthy benefactions were received. The amount of pro-

ductive funds was \$1,637,034 and the income was \$156,500. The library contains about 85,000 volumes. President, 1911, William A. Shanklin, D. D.

WEST, CLIFFORD HARDY. A rear-admiral, retired, of the United States navy, died November 2, 1911. He was born in Brooklyn in 1846 and graduated from the United States Naval Academy in 1867. In the following year he was made ensign, was promoted to be master in 1870, lieutenant, 1871, lieutenant-commander, 1888, commander, 1896, captain, 1901, and rear-admiral, 1902. In the same year he was retired. He served on many duties and stations, and was on board the steam sloop *Wyoming* in the West Indies during complications with Spain in regard to the steamers *Virginias* and *Edgar Stuart*. He was lieutenant and executive officer on board the *Alliance* during the search for Lieutenant DeLong on the coasts of Greenland, Iceland, and Spitzbergen. At the outbreak of the Spanish-American War he was chief of staff of Admiral Sicard on the flagship, *New York*. During this war he commanded the *Princeton*. He also took part in operations against the insurgents in the Philippines.

WESTERN AUSTRALIA. A state of the Commonwealth of Australia. The area is stated at 975,920 sq. miles. Final returns of the census of April 3, 1911, showed a population (exclusive of aborigines) of 282,114, as compared with 184,124 in 1901. The percentage of increase was 53.22, as compared with 18.05 for the commonwealth. The capital is Perth, with 84,580 inhabitants in 1911 (preliminary returns). Executive authority rests with a governor, who is appointed by the British crown and is assisted by a responsible ministry. The legislative power devolves upon a parliament of two elective houses, the Legislative Council and the Legislative Assembly. Governor in 1911, Sir Gerald Strickland; premier, John Scadden. See AUSTRALIA.

A violent contest arose over the Redistribution of Seats bill when it was debated in parliament. The Labor party employed obstructive measures and six of them were ejected from the house. Finally, all the Labor members withdrew. The election of October, 1911, brought a Socialist and Labor ministry into power, with Mr. John Scadden, premier.

WESTFALEN. See BATTLESHIPS.

WEST VIRGINIA. POPULATION. The Thirteenth Census showed a population in 1910 of 1,221,119, compared with 958,800 in 1900, an increase of 27.4 per cent. in the decade. The principal cities with their populations in 1910 and 1900 are given below (the figures in parentheses are for 1900): Wheeling, 41,641 (38,878); Huntington, 31,161 (11,923); Charleston, 22,996 (11,090); Parkersburg, 17,842 (11,703); Martinsburg, 10,698 (7564); Bluefield, 11,188 (4644).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. At that date there were in the State 96,685 farms, compared with 92,874 in 1900. The land in farms amounted to 1,026,442 acres, a decrease of 628,071 from the amount in farms in 1900. The improved land in farms amounted to 5,521,747. The average acreage per farm was 103.7. The value of all farm property, including land, buildings, implements and machinery, domestic animals,

poultry, and bees, was \$314,738,540, as compared with a value of \$203,907,349 in 1900. The average value of all property per farm was \$3255, and the average value of land per acre was \$20.65, as compared with \$12.60 in 1900. Of the 96,685 farms in the State 76,850 were operated by owners and managers; and 19,835 were operated by tenants. Of the former there were 66,093 farms free of mortgage, while 9525 were mortgaged. Of those operating and managing farms, 95,138 were native whites, 839 were foreign-born whites, and 708 were negroes and other non-whites. The domestic animals, poultry, and bees were valued in 1910 at \$43,336,073, as compared with a value in 1900 of \$30,571,259. The cattle numbered 620,288, valued at \$15,860,764; horses and colts, 179,991, valued at \$18,583,381; mules and mule colts, 11,717, valued at \$1,339,760; swine, 328,188, valued at \$2,087,392; sheep and lambs, 910,360, valued at \$3,400,901. The poultry of various kinds numbered 3,310,155, valued at \$1,628,700. The acreage, production, and value of the principal crops will be found in the table below:

		Acreage	Prod., bu.	Value
Corn	1911	707,000	18,170,000	\$13,991,000
	1910	700,000	18,200,000	12,376,000
Wheat	1911	238,000	2,737,000	2,792,000
	1910	241,000	3,012,000	3,072,000
Oats	1911	110,000	2,420,000	1,855,000
	1910	110,000	2,772,000	1,386,000
Rye	1911	17,000	187,000	168,000
	1910	17,000	219,000	187,000
Potatoes ..	1911	44,000	1,980,000	2,059,000
	1910	45,000	4,140,000	2,774,000
Hay	1911	648,000	a 428,000	8,560,000
	1910	676,000	810,000	12,150,000
Tobacco ..	1911	15,000	b 11,250,000	900,000
	1910	25,000	16,000,000	1,648,000
a Tons. b Pounds.				

MINERAL PRODUCTION. The State ranked second in 1910 in the value of the coal produced, taking this position from Illinois, which held it previously. Pennsylvania is the only State producing more coal than West Virginia. The total production in 1910 was 61,671,019 short tons, as compared with a production of 51,849,220 short tons in 1909. The value increased from \$44,661,716 in 1909 to \$56,665,061. The increased production in 1910 was due largely to abnormal conditions, including the strike in the States of the Middle West, which placed Illinois at a disadvantage, most of the larger mines in the latter State being completely shut down. The coal producers of the State suffered from a lack of local markets and the necessity of shipping the product to distant points.

The actual output of the year 1911, according to the chief of the State Department of Mines, was 54,000,000 long tons, or about 60,500,000 short tons, as compared with 61,671,000 short tons in 1910. There were no serious interruptions in the mining industry owing to labor troubles during the year, and the few instances of disaffection which arose were settled satisfactorily within a few hours after the strikes began.

FINANCE. The report of the treasurer showed a balance on hand October 1, 1910, of \$1,415,336. There was received during the fiscal year 1910-11 \$5,379,699. The disbursements amounted to \$5,183,416, leaving a balance on hand September 30, 1911, of \$1,611,620. The total valuation of utilities, personal property, and real estate was

\$1,119,828,173. The rate was 84 cents. per \$100. The State has no bonded debt.

The charitable and correctional institutions of the State, with their population in 1911, are: West Virginia Penitentiary, 1130; West Virginia Reform School, 290; Industrial Home for Girls, 77; West Virginia Hospital for Insane, 1030; Second Hospital for Insane, 530; West Virginia Asylum, 500; Miners' Hospital, Number One, 50; Miners' Hospital, Number Two, 35; Miners' Hospital, Number Three, 33; West Virginia Schools for the Deaf and Blind, 190; Colored Orphans' Home and Industrial School, 100; West Virginia Children's Home, branch of the West Virginia Humane Society, 45.

The institutions were, by act of the legislature passed at the session of 1909, committed to the control of the State Board of Control, which body came into existence on the first day of July, 1909.

POLITICS AND GOVERNMENT

The legislature met in 1911 and the most important measures passed are noted in the paragraph *Legislation* below. The death of Senator Elkins in 1910 and the expiration of the term of Senator Scott made it necessary for the legislature to choose two United States senators. As a result of the elections in 1910 the legislature was Democratic and this insured the election of two Democratic senators. Previous to the session of the legislature, Governor Glasscock appointed Davis Elkins to succeed his father until the legislature could choose his successor. This arrangement could be valid for only a few days or until the legislature should organize. On January 15, fifteen Republican members of the Senate left the State to prevent a quorum for the unseating of two Republicans, whose elections were contested. In the Democratic caucus held on January 18, Clarence W. Watson and W. E. Chilton were nominated to fill the two vacancies. Owing to the absence of the Republican members, who had gone to Cincinnati, O., to be beyond the jurisdiction of the State, and delay the organization and work of the legislature, it was impossible to bring about an election until February 1, when, the Republican members having returned, Messrs. Chilton and Watson were elected. In connection with the election of these senators, charges of bribery were made, but were denied and were not investigated. On February 4, the House of Delegates ratified the income tax amendment, but this was not afterwards ratified by the Senate.

The long-standing contention between Virginia and West Virginia as to how much of the debt of the State of Virginia, incurred prior to the separation of the two States, should be borne by West Virginia, was passed on by the United States Supreme Court in March. The claim of the latter State was that it was not liable for any of this debt, and the question has been in controversy in the courts for many years. The debt was originally incurred largely against the protest of that part of the State now known as West Virginia. The money was used in the development of the eastern region, especially in the construction of railways, canals, and other means of commerce. In the constitution of West Virginia an agreement was made as a part of the articles of separation, that the new State should assume

its proper share of this debt. The amount, however, was never paid. The question before the court was the method of determining the exact share of the debt of West Virginia. The contention of Virginia was that it should be determined on the basis of area and population in 1861, when the two States were divided. The Supreme Court did not agree with these views. The opinion, written by Justice Holmes, was agreed to by all the other members of the court. It suggested that the share be determined on the ratio of assessed valuation of real and personal property in West Virginia to that of Virginia as it was returned for taxation in 1861. The court found that on this ratio Virginia should pay, after certain deductions were made, 76.5 per cent. of the whole debt, and West Virginia 23.5 per cent.

LEGISLATION. The important measures passed at the legislative session of 1911 included the following: A State tuberculosis sanitarium was established. A law prohibiting the manufacture and sale of intoxicating liquors was amended, subject to ratification by the people at the general election held in 1912. Provision was made for the medical examination of all pupils in the public schools of the State. The office of commissioner of agriculture was created.

STATE OFFICERS: Governor, William E. Glasscock; Lieutenant-Governor, H. D. Hatfield; Secretary of State, Stuart F. Reed; Treasurer, E. L. Long; Auditor, John S. Darst; Attorney-General, William G. Conley; Adjutant-General, Charles D. Elliot; Superintendent of Schools, M. P. Shawkey; Secretary of Agriculture, J. M. Millan—all Republicans.

JUDICIARY. Supreme Court of Appeals: President, L. Judson Williams; Associate Justices, George Poffenbarger, Ira E. Robinson, Henry Brannon, William N. Miller; Clerk, W. B. Mathews—all Republicans.

STATE LEGISLATURE, 1911. Democrats, Senate, 15; House, 63; joint ballot, 78. Republicans, Senate, 15; House, 23; joint ballot, 38. Democratic majority, House, 40; joint ballot, 40.

The representatives in Congress will be found in the article *UNITED STATES, Congress*.

WEST VIRGINIA UNIVERSITY. An institution of higher learning at Morgantown, W. Va., founded in 1867. It is under State control and is coeducational and non-sectarian. The university includes the colleges of arts and sciences, law, agriculture, engineering, and mechanic arts; and the department of military science and tactics, the school of music, of fine arts, and the summer school. Tuition is free to residents, except in law and engineering. An agricultural experiment station is connected with the university, the dean of the college of agriculture being the director of the station. In 1910-11 there were enrolled in all departments of the university 1426 students, including the summer school and extension schools in agriculture. There were 80 professors and instructors, exclusive of the station staff. The university is supported by appropriations of the State legislature and by the interest on various funds. The total receipts for 1910-11 were about \$275,000. In July, 1911, Daniel Boardman Purinton, Ph. D., resigned the presidency, after a term of ten years, and was succeeded by Thomas Edward Hodges, D. Sc.,

LL. D. The library of the university contains about 42,500 volumes.

WHALE FISHERIES. See **FISH AND FISHERIES.**

WHARTON, EDITH. See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

WHEAT. The world's wheat crop in 1911 was estimated at 3,614,443,000 bushels, or about 99 per cent. of the crop of 1910. The area devoted to wheat was estimated at 230,000,000 acres. The production was about 6 per cent. above the five-year average. The principal countries reporting yields lower than in 1910 were the United States, Russia, Rumania, Australia, and Germany. The Russian crop of 1911 was about 25 per cent. smaller than the crop of the year before. The crop season of 1911 in Europe was marked in many sections by a late and cold spring and by very dry and excessively hot weather in July. The dry weather was especially pronounced in Russia. In the United States dry weather in the fall of 1910 and unfavorable climatic conditions during the winter were detrimental to the development of winter wheat and caused a considerable acreage of the crop to be abandoned in Kansas, Oklahoma, and Texas. For the spring wheat crop the season was also quite unfavorable. The preceding dry fall and winter had left the ground and especially the subsoil deficient in moisture. The crop at first made promising growth, but when later in the season the lack of rainfall was almost unprecedented, the prospects of a good yield in the principal spring wheat territory were very much reduced. Among the principal wheat growing countries, Russia produced 627,655,000 bushels in 1911 and 775,695,000 bushels in 1910; British India, 372,000,000 bushels, a record crop, in 1911, and 357,941,000 bushels in 1910; France, 322,375,000 bushels in 1911 and 268,364,000 bushels in 1910; Italy, 193,739,000 bushels in 1911 and 153,337,000 bushels in 1910; Hungary, 135,035,000 bushels in 1911 and 194,600,000 bushels in 1910; and Canada, 204,414,000 bushels in 1911 and 149,900,000 bushels in 1910. The production of wheat in the principal countries of the southern hemisphere for the crop year 1910-11 was as follows: Argentina 137,270,000 bushels, Australia 90,642,600 bushels, Chili 36,350,400 bushels, and New Zealand, 7,342,800 bushels. For the crop year 1911-12 the estimates of production for Argentina, Australia, and Chile were 193,034,000, 73,764,300, and 125,162,000 bushels respectively. A more complete list of yields by countries for the two years is given under **AGRICULTURE.**

The United States produced in 1911 a total of 621,338,000 bushels on 49,543,000 acres, as compared with 635,121,000 bushels on 45,681,000 acres in 1910. The average yield per acre was 12.5 bushels, as compared with 13.9 bushels in 1910, and 15.4 bushels in 1909. The farm value per bushel on December 1, was 87.4 cents. against 88.3 cents. the previous year and the total value of the crop based on these bushel values was \$543,063,000 and \$561,051,000 respectively. The corresponding bushel value in 1909 was 98.6 cents. The winter wheat production of 1911 was 430,656,000 bushels or 3,486,000 bushels less than in 1910 and the area grown was 29,162,000 acres or 1,833,000 acres more than in 1910. The spring wheat yield for the year was 190,682,000 bushels or 10,297,000 bushels less than the year before,

while the area grown was 20,381,000 acres or 2,029,000 acres more than in 1910. The value of the winter wheat crop was \$379,151,000 and the value of the spring wheat crop \$163,912,000. The average yield per acre of winter wheat was 14.8 bushels against 15.9 bushels in 1910, while the average yield of spring wheat for the two years was 9.4 and 11 bushels respectively. The principal winter wheat states among 37 growing this crop in 1911, together with their production, were as follows: Kansas 51,030,000 bushels, Illinois 42,000,000 bushels, Nebraska 38,474,000 bushels, Ohio, 36,240,000 bushels, Missouri 36,110,000 bushels, Indiana 34,354,000 bushels, and Washington 25,116,000 bushels. Of 19 States reporting spring wheat production in 1911, the leading ones were North Dakota, with 73,200,000 bushels; Minnesota, with 43,935,000 bushels; South Dakota, with 14,800,000 bushels; and Washington, with 25,545,000 bushels. In 1910 North Dakota produced 38,500,000, Minnesota 64,000,000, South Dakota 46,720,000, and Washington 18,125,000 bushels.

The data published by the Thirteenth Census show that the area of wheat harvested decreased from 52,589,000 acres in 1899 to 44,261,000 acres in 1909, a decrease of 8,328,000 acres, or 15.8 per cent. In 1879 35,430,000 acres, and in 1889, 33,580,000 acres, were in wheat. The production rose from 658,534,000 bushels in 1899 to 683,350,000 bushels in 1909, an increase of about 25,000,000 bushels, or 3.8 per cent. The average yield per acre was 12.5 bushels in 1899 and 15.4 bushels in 1909.

WHISKEY. See **LIQUORS.**

WHITEHOUSE, FREDERICK COPE. An American lawyer and archaeologist, died November 16, 1911. He was born in Rochester, N. Y., in 1842, and graduated from Columbia University in 1861. He afterwards studied in France, Germany, and Italy, and was admitted to the bar in 1871. The greater part of his life was devoted to travel and study. He discovered in 1882 a depression in the Egyptian desert, now known as the Wadi Raiyan, which in ancient times was used as a reservoir of Nile waters. Mr. Whitehouse contended that without much expenditure of money this depression could again be used as a storage place for water. He filed a claim for the depression with the Egyptian government, but was never able to obtain possession of the tract. He insisted that the English engineers on the Nile blocked the project and he endeavored to secure the aid of the Department of State to enable him to collect \$40,000, which he claimed was due him as reparation from the Egyptian government. He made extensive researches in Semitic traditions relating to the Canal of Joseph and the land of Goshen, which he identified with the Fayum. He was a frequent contributor to magazines on topics relating to astronomy, geology, and other scientific subjects, and on foreign banks and banking.

WHITING, LILLIAN. See **LITERATURE, ENGLISH AND AMERICAN, Literary Biography.**

WICHITA. See **KANSAS.**

WHITAKER, OZI WILLIAM. An American Protestant Episcopal bishop, died February 9, 1911. He was born in New Salem, Mass., in 1830 and graduated from Middlebury College in 1856. He studied theology at the General Theological Seminary, graduating in 1863. In the same year he became rector of St. John's Church

at Gold Hill, Nev., and after remaining there two years became rector of St. Paul's Church in Englewood, N. J. After two years in this pastorate he returned to Nevada in 1867 as rector of St. Paul's Church, Virginia City, and in 1869 was consecrated missionary bishop of Nevada. He was appointed assistant bishop of Pennsylvania in 1886 and in the following year was chosen bishop upon the death of Bishop Stevens. In his service as bishop of Pennsylvania he made great extensions of the work of his diocese and added a large number of church institutions and parish houses to its equipment. In 1909 cataracts developed on both his eyes and he became almost blind. He continued to conduct service until November 5, 1910, when he was obliged to give up active work. He published several volumes of sermons. He received the degree of D. D. from Kenyon College and that of LL. D. from the University of Pennsylvania.

WHITING, WILLIAM. An American paper died January 9, 1911. He was born at Dudley, Mass., in 1841 and was educated in the public schools. He served in various capacities with the Holyoke Paper Company and in 1865 organized the Whiting Paper Company, of which he became president. He was also president of several other manufacturing corporations. In 1872 he was a member of the Massachusetts Senate and in 1878-9 he was mayor of Holyoke. He was elected to the Forty-eighth Congress in 1882, and was reelected to the Fiftieth Congress, serving until 1899. He represented the Sixth Massachusetts District. In 1900 he was a commissioner at the Paris Exposition.

WHITNEY, EDWARD BALDWIN. An American jurist, died January 5, 1911. He was born in New Haven, Conn., in 1857. His father was William Dwight Whitney of the faculty of Yale College. He graduated from Yale in 1878 and after studying law at Yale and Columbia was admitted to the bar in New York in 1880. In 1883 he formed a partnership with General Henry L. Burnett. He later became a member of the firm of MacFarlane, Whitney and Monroe. In 1893 he was appointed assistant attorney-general of the United States, serving in that position until 1897. He aided in arguing the income tax case, the Debs case, and causes arising from the interstate commerce law and from the Cuban insurrection. He also took part in the prosecution of the famous Addyston Pipe case in which President Taft, then a federal judge, wrote (1898) the first judicial decision condemning a manufacturing trust under the Sherman law of 1890. In 1904 he was retained by the Public Service Commission of New York City to defend the eighty-cent gas law. He was a Democrat in politics and was a candidate for the Supreme Court on the Independent ticket in 1906, but was defeated. In 1909 he was appointed a justice of the State Supreme Court by Governor Hughes. In the fall of 1910 he failed of election to the position.

WHITNEY, HENRY MITCHELL. An American scholar and educator, died March 25, 1911. He was born in Northampton, Mass., in 1843 and graduated from Yale College in 1864. He served throughout the Civil War, both in the ranks and as an agent of the United States Christian Commission. He studied theology at Princeton Theological Seminary and at the Andover Theological Seminary, graduating from the latter institution in 1868. In the following

year he was ordained to the Congregational ministry and became pastor of a Congregational Church in Geneva, Ill., remaining there until 1871. In that year he was appointed professor of English literature in Beloit College. After holding this position until 1899 he was chosen librarian of the James Blackstone Memorial Library at Branford, Conn. He took an active part in public affairs and was for many years an alderman of Beloit. He was the joint author of *Columbian History of Education in Wisconsin*; *History of the Fifty-second Massachusetts Regiment*, and *Twentieth Century New Testament*. He also contributed to the *Century Dictionary* and to periodicals. He was well known also as a lecturer.

WHITSITT, WILLIAM HETH. An American theologian and educator, died January 20, 1911. He was born at Nashville, Tenn., in 1841 and was educated at Union University and the University of Virginia. He studied theology at the Southern Baptist Theological Seminary and at the University of Leipzig. He was ordained to the Baptist ministry in 1862. He served in the Confederate army from 1862 to 1865. In the latter year he became pastor of a church near Nashville. He was appointed professor of church history in the Southern Baptist Theological Seminary in 1872 and occupied this chair until 1895. In that year he was elected president of this Seminary, serving until 1899. From 1901 to the time of his death he was professor of philosophy in Richmond College. He was the author of the *History of Origin of Infant Baptism* (1878); *History of Communion among Baptists* (1880); *Origin of the Disciples of Christ* (1888); and *Genealogy of Jefferson Davis* (1908). He was the associate editor of Johnson's Universal Cyclopedia.

WHYMPER, EDWARD. An explorer, artist, and mountain climber, died September 16, 1911. He was born in London in 1840 and was educated at the Clarendon House School and by private teachers. He was sent in 1860 by a London publisher to sketch the Alpine peaks. In the following year he reached the summit of Mont Pelvoux and in 1864 ascended the Pointe des Ecrins. In 1865 he scaled the Matterhorn and was the first man to reach its summit. He made a trip to Greenland in 1867, and a result of his exploration was the collection of fossil plants which are now in the British Museum. His discovery of magnolia cones demonstrated the former existence of luxuriant vegetation in the now frozen north. In 1879 he began mountain climbing in the Ecuadorian Andes and reached the top of Chimborazo. During this trip he discovered several Andean glaciers and made several important fossil collections. When he was past fifty he made several of the first ascents of the Canadian Rockies. His narratives of his explorations and mountain climbings are of great interest and are written in an unusually entertaining vein. Among his best known writings are *Scrambles amongst the Alps in the Years 1800 and 1869* (1871); *Travels amongst the Great Andes of the Equator* (1892); *Chamonix and Mont Blanc* (1896) and *Zermatt and the Matterhorn* (1897). He was a member of the Royal Geographical Society and an honorary member of the Geographical Society of Paris. He was a member also of many European and American mountain climbing clubs.

WILDE, GEORGE FRANCIS FAXON. A rear-admiral, retired, of the United States navy, died December 2, 1911. He was born at Braintree, Mass., in 1845. He entered the United States Naval Academy, graduating in 1864. During the last year of the Civil War and for two years thereafter he served on the flagship *Susquehanna*. He afterwards served on the *Albany*, *Tennessee*, and the *Wabash*, and in 1873 became commander of the monitor *Canonicus*. From 1878 to 1882 he was executive officer of the *Vandalia*. He commanded in 1885 the *Dolphin*, the first steel vessel of the United States navy to circumnavigate the globe. From 1894 to 1898 he served as secretary of the lighthouse board and in this capacity introduced gas-buoys on the Great Lakes and established an electric-light vessel off Diamond Shoal, Cape Hatteras, and had the light ships connected with the shore by telephone. During the Spanish-American War he commanded the ram *Katahdin*, and in 1898 was promoted to the rank of captain. As commander of the *Boston* he landed in China the first American marines ever seen in that country. These were sent to Peking, where they guarded the American legation from November, 1898, to April, 1899. In the latter year he served in the Philippine Islands, capturing the cities of Iloilo and Vigan. In the latter place he rescued 160 Spanish officers and their families and for this he received the thanks of the Spanish government. In 1901 he was captain of the Portsmouth navy yard and was successively captain of the Boston navy yard, commandant of the League Island navy yard, and commandant of the Boston navy yard. He became a rear-admiral in 1904 and was retired in the following year. From 1906 until the time of his death he was chairman of the Massachusetts Nautical Training School Commission.

WILLIAMS, ABRAM PEASE. A former United States senator from California, died October 17, 1911. He was born in New Portland, Me., in 1832 and received an academic education. After working for some time in a store in Fairfield, Me., he removed in 1858 to California, where he engaged in mining, farming, and merchandising. He founded the San Francisco Board of Trade and was its first president. He took a prominent part in politics and was elected United States senator to fill an unexpired term in 1886.

WILLIAMS, JAMES. An English writer and lawyer, died November 3, 1911. He was born in Liverpool in 1851 and was educated at Liverpool College and Lincoln College, Oxford. He became a barrister in 1875. He contributed over one hundred articles to the ninth edition of the *Encyclopædia Britannica*, in addition to many articles in law magazines and reviews. He was the author of *The Schoolmaster and the Law* (1890); *Wills and Successions* (1890); *Law of Education* (1892); *Institutes of Justinian* (1893); and *Dante as a Jurist* (1906). In addition to his legal writings he was the author of *A Lawyer's Leisure* (1884); *Simple Stories of London* (1890); *Briefless Ballads* (1895), and *Ventures in Verse* (1898). In 1906-7 he was high-sheriff of Flintshire. He received the degree of LL.D. from Yale University.

WILLIAMS, JOHN SHARP. United States senator (Democrat) from Mississippi. He was born at Memphis, Tenn., in 1854 and was educated at private schools and at the University of

the South. He studied also at the University of Virginia and at the University of Heidelberg. He studied law at the University of Virginia and was admitted to the bar. In 1878 he removed to Yazoo City, Mississippi where he engaged in the practice of his profession and in the occupation of a cotton planter. He took an active part in State politics and was a delegate to the Chicago Convention, which nominated Cleveland and Stevenson. He served as temporary chairman of the Democratic National Convention in 1904. He served from the Fifty-third to the Fifty-ninth Congresses inclusive and was reelected to the Sixtieth Congress, receiving no opposition for either renomination or election. He was the candidate of his party for the office of speaker in the Fifty-eighth, Fifty-ninth, and Sixtieth congresses. In 1907 he was chosen at a primary election to be the candidate of the Democratic party for the United States Senate and on January 21, 1908, was elected by the legislature to succeed Senator H. D. Money. He took his seat on April 4, 1911. His term of service will expire in 1917.

WILLIAMSON, NOEL. See **EXPLORATION, ASIA.**

WILSON, BENJAMIN LEE. An American educator and critic, died June 23, 1911. He was born in Newark, O., in 1867 and was educated in the public schools of that city. He attended Cornell University where he studied Shakespeare under Professor Hiram Corson (q. v.). For several years following he studied and played under Augustin Daly, combining his work with the study of Shakespeare. In 1893 he became head master at the New York Military School, Cornwall, where he remained until 1900. He left this to establish the Wilson School for Boys at Fishkill, N. Y. In 1910 he returned to the New York Military School as head master. He wrote several books, the best known of which is *The Evolution of the English Drama*.

WILSON, IDA (LEWIS). The keeper of Lime Rock light, and a famous life saver, died October 24, 1911. She was born in 1839. Her father, Hosea Lewis, was the first keeper of the Lime Rock Light. He was crippled with rheumatism and was kept at times from the duties necessary to the place so that his daughter was frequently called upon to help him. She learned the management of the light and became an expert in the handling of the life boat. When she was eighteen years of age her father died and she was allowed to continue in the care of the light until his successor could be appointed. Her first exploit was the saving of four young men on a capsized boat. This took place when she was but fifteen years of age. In February, 1867, a soldier belonging to the garrison of Ft. Adams, was capsized while trying to cross Newport Harbor in a small boat. Miss Lewis went to his aid and towed him to the lighthouse, keeping his head out of the water, as she was not strong enough to lift him into the boat. In March, 1869, she saved two other soldiers in rowing out from the lighthouse after their boat had capsized. In 1877 a boat containing three men was overturned in Newport Harbor in a gale. Miss Lewis, alone in her small boat, dragged the men from the water. In 1881 she rescued two soldiers who had attempted to cross on the ice from Newport to Ft. Adams. In this exploit she and her brother nearly lost their lives. In 1904 when she was more than sixty-

five years of age she performed her last feat of life saving. This was the rescue of a woman friend who fell overboard near the pier at the Lime Rock Light. In all she saved twenty-two lives. She received the thanks of Congress and a gold medal. She was also given a cross from the American Cross of Honor Society and was the recipient of many gold and silver medals. The citizens of Newport presented her with a boat named the *Rescue*. She received many other evidences of public recognition for her heroism. In 1869 the Life Saving Benevolent Association of New York awarded her a prize of \$100 and a silver medal. In the same year the general assembly of Rhode Island recognized her services officially. In 1878 by a special act of Congress she was made keeper of the Lime Rock Light. In 1907 she celebrated her golden anniversary of this position. In the same year she received from Andrew Carnegie a pension of \$30 a month. When she was about thirty-five years old she was married, but separated from her husband and resumed her maiden name.

WILSON, WILLIAM ROBERT ANTHONY. An American author and physician, died May 14, 1911. He was born in Washington, Ill., in 1870, and graduated from Williams College in 1892 and at the College of Physicians and Surgeons in New York in 1895. After practicing for a short time in Peoria, Ill., he was obliged, on account of ill health, to abandon it and to travel extensively for several years. In 1906 he removed to Pittsfield, Mass., and devoted himself to literary work. He was the author of *The Rose of Normandy* and *A Knot of Blue*. He also wrote several boys' books, which were widely known. These included *Comrades Three* and *Journeys of the Kit-Kat Club*.

WILSON, WOODROW. See NEW JERSEY, and UNITED STATES, Elections in 1912.

WINDWARD ISLANDS. A group of islands, the windward or southern group of the British West Indian islands. See BARBADOS, ST. LUCIA, ST. VINCENT, and GRENADA. Sir James Hayes Sadler (1911), residing at St. George's, Grenada, is governor and commander-in-chief of the group; but each colony has its separate government.

WINE RIOTS. See FRANCE.

WINES, CONSUMPTION OF. See LIQUORS.

WINNEBAGO. See ANTHROPOLOGY.

WINTER, Sir JAMES SPEARMAN. A public official of Newfoundland, died October 7, 1911. He was born at Lamaline, Newfoundland, in 1845. In his youth he was a clerk in a merchant's office, but studied law and was called to the bar in 1867. He was a member of the House of Assembly from 1874 to 1889, in 1893, and from 1897 to 1900. In 1877 and 1878 he was speaker of the house. He afterwards became successively a member of the Executive Council, solicitor-general, and attorney-general, and was elected the leader of the opposition. He represented Newfoundland at the Washington Fisheries Conference in 1887. In 1893 he was raised to the Newfoundland bench, but three years later resigned and resumed the practice of law. He was soon afterwards chosen leader of the opposition and on the fall of the White-way government in 1897, became premier, holding this office until 1900.

WINTERBURN, GEORGE WILLIAM. An American physician and editor, died November 18, 1911. He was born in New York in 1845.

He spent a year in the Cincinnati Law School and then studied in the Ohio Medical College, Cincinnati, at the University Medical College, in New York, and the Eclectic Medical College in the same city. He received his medical degree from the last named institution in 1875. Before studying medicine he had engaged in newspaper work and had been New York correspondent for several medical journals and an editorial writer on the *New York Evening Post*. In 1882 he became editor of the *American Homœopathist*, and five years later, editor of the *Homœopathic Journal of Obstetrics*. From 1878 to 1882 he was professor in the Eclectic Medical College and in 1883-84 in the United States Medical College in New York City. He was a contributor to various medical publications.

WIRELESS TELEGRAPHY AND TELEPHONY. The distance covered by the high-power transmission stations have continued to advance greatly. The service between the Eiffel tower at Paris and American stations has reached a commercial basis. A new high-power station at Coltona, Italy, is reported to possess a 1000-kw. sender, from which messages have been received at Glace Bay, Nova Scotia, a distance of 4000 miles. Messages from the 400-kw. station at Clifden, Ireland, are reported to have reached South American stations 7000 miles distant. In the realm of apparatus the trend of development has been along the line of the quenched gap and frequencies of approximately 1000 per second.

An important new installation is that of the Navy Department at Washington, D. C., which is to have a 100-kw. transmitter and three towers, one 600 feet and two 450 feet in height. This will afford a range of between 2000 and 3000 miles for communication with ships. The German station at Nauen, the second highest in Europe, is being increased from 100 meters to 200 meters and is expected to rival the Eiffel tower in working range.

Captain Brenot of the French army succeeded in sending messages to the Eiffel tower when flying at a height of 1650 feet and at distances varying from 25 to 35 miles. The apparatus has a gross weight of but 50 pounds, power being derived from the gasoline motor of the aeroplane. An aerial wire, 120 feet in length, is unrolled while in flight.

Wireless telephony remained in an inactive state during 1911, the few trials which were reported involving small outfits covering a range not exceeding 50 miles. The progress of all types of wireless communication is much retarded by the uncertainty of the patent situation, pending the decisions of the highest courts on suits covering basic principles. A recent decision in England fully sustained the Marconi claims.

WISCONSIN. POPULATION. The Thirteenth Census showed a population in 1910 of 2,333,860, compared with 2,069,042 in 1900, an increase of 12.8 per cent. in the decade. The principal cities with their populations in 1910 and 1900 are given below (the figures in parentheses are for 1900): Milwaukee, 373,857 (285,315); Racine, 38,002 (28,284); Lacrosse, 30,417 (28,895); Madison, 25,531 (19,164).

AGRICULTURE. The Thirteenth Census included statistics relating to agriculture. The figures are of date of April 15, 1910. At that time

there were in the State 177,127 farms, as compared with 169,795 in 1900, an increase of 4.3 per cent. The land in farms in the State amounted to 21,060,466 acres, and the improved land in farms to 11,907,606. The average number of acres per farm was 119. The total value of farm property was \$1,413,043,000, as compared with \$811,712,000, an increase of 74.1 per cent. The average value of all property per farm was \$7978, and the average value of land per acre was \$43.30. Of the total number of farms, 152,473 were operated by owners and managers, while 24,654 were operated by tenants. Of the farms operated by persons owning all or part of the land, those free from mortgage in 1910 numbered 72,941, while those under mortgage amounted to 77,139. Of the farmers of the State 107,180 were native white, 69,356 were foreign-born white, and 591 were negro and other non-white.

The domestic animals and poultry in the State in 1910 were valued at \$158,454,043, as compared with a value in 1900 of \$96,327,649. The cattle numbered 2,678,160, valued at \$67,399,856; horses and colts, 614,654, valued at \$68,585,513; mules, 2872, valued at \$316,066; swine, 1,809,331, valued at \$13,620,741, and sheep and lambs, 929,783, valued at \$3,669,572. The poultry of all varieties numbered 9,433,110, valued at \$4,468,703. The acreage, production, and value of the principal crops in 1910 and 1911 are shown in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	1,600,000	58,080,000	\$34,848,000
1910	1,520,000	49,400,000	25,688,000
Wheat ....1911	195,000	3,097,000	2,788,000
1910	186,000	3,590,000	3,302,000
Oats .....1911	2,250,000	67,050,000	80,172,000
1910	2,250,000	67,050,000	22,797,000
Rye .....1911	355,000	6,035,000	5,069,000
1910	340,000	5,440,000	3,862,000
Potatoes ..1911	280,000	32,480,000	20,138,000
1910	280,000	26,600,000	10,108,000
Hay .....1911	2,079,000	2,495,000	38,922,000
1910	2,260,000	2,260,000	34,126,000
Tobacco ...1911	41,000	551,250,000	5,125,000
1910	34,000	35,700,000	2,677,500
a Tons. b Pounds.			

MINERAL PRODUCTION. The State ranks fifth in the production of iron ore. In 1910 there were mined 1,149,551 long tons, valued at \$3,610,349, compared with 1,067,436 tons, valued at \$2,727,406 in 1909.

EDUCATION. The number of children of school age in the State in 1909-10 was 780,008. The enrollment was 460,065. The school houses in the State numbered 7769, with a seating capacity of 575,439. The male teachers employed numbered 1718, and the female teachers, 13,011. The average monthly salary of male teachers, outside of cities, was \$66.69, and of female teachers, \$44.29.

CHARITIES AND CORRECTIONS. The names of the institutions under the State Board of Control, with their population and expenditures for the year ending June 30, 1911, are as follows: State Hospital for Insane, 591, \$162,286.36; Northern Hospital for Insane, 608, \$168,890.39; School for the Deaf, 198, \$64,546.03; School for the Blind, 86, \$37,618.76; Industrial School for Boys, 368, \$77,903.08; State Prison, 708, \$136,830.40; State Public School, 162, \$57,448.22; Home for Feeble-minded, 979, \$168,844.46; Wisconsin State Reformatory, 246, \$67,189.44; State

Tuberculosis Sanatorium, 120, \$98,447.56; total population, 4066; total expenditures, \$1,040,004.70.

During the year ending June 30, 1911, a number of improvements were made at the State institutions and a number of additional buildings were constructed. A new dormitory at the Wisconsin Industrial School for Boys was built at a cost of \$25,000. The operation of the parole law or the law permitting the parole of persons from the Wisconsin State Prison which was enacted in 1907 has shown very satisfactory results. The probation law which was enacted in 1909 has also given satisfactory results up to the present time, but it has not been in operation a sufficient length of time to justify a determination as to its final results.

POLITICS AND GOVERNMENT

The legislature met in 1911 and passed an unusual number of important measures, which will be found noted in the paragraph *Legislation*, below. The provisions of the income tax referred to in that paragraph are, in the main, as follows: On incomes over \$500 the recipient must make a return to the assessor. In the case of unmarried persons the income will be taxed when it passes the \$800 mark. Married men are taxed on incomes when they amount to over \$1200. The tax is graduated, starting at 1 per cent. on incomes of \$1000 or any part of it, and increasing one-fourth of 1 per cent. on each added \$1000, until \$12,000 is reached, when the tax is 5½ per cent. On incomes over \$12,000 the tax is 6 per cent. Corporations are allowed exemptions on sums paid for salaries and wages, if such corporation return to the assessor the amounts of such salaries and the names of those receiving them. In computing the tax and exemptions, the incomes of husband, wife, and each child under eighteen years of age is added when all live together. United States officials are exempt so far as their salaries are concerned, as are pensions from the United States, and salaries of members of the legislature.

The legislature approved an amendment to the woman suffrage bill, and the measure will be submitted to the people. On January 25, Senator La Follette was reelected to the United States Senate. He received 83 votes, or 16 more than were necessary to elect.

A committee to investigate the election of Senator Isaac E. Stephenson in connection with alleged charges of corruption, reported to Governor McGovern on January 11.

Senator Stephenson was charged with violating the statute which requires that an account under oath of all campaign expenditures be filed. It was also alleged that such violation was premeditated. It was further charged that he violated the law which prohibits anyone from contributing money to assist a candidate for the legislature residing outside of the district in which the contributor resides. The charge was made that Senator Stephenson was elected by the legislature to the United States Senate by a majority of three votes, while the charges of corruption against him were being investigated by the legislature. In June the legislature passed a resolution calling on the United States Senate to investigate the election of Senator Stephenson in accordance with the charges made by this investigating committee, and on August

12 the committee on privileges and elections in the Senate, after a consideration of the charges, recommended an investigation of them. This investigation was carried on during the summer and autumn of 1911. The testimony showed that Mr. Stephenson had expended over \$100,000 in bringing about his election to the Senate, but the evidence adduced to the end of the year had failed to show that any of this had been spent for the corruption of legislators, and the indications were that Senator Stephenson would be exonerated by the Senate committee.

Municipal elections were held on April 4. The most interesting results were in Milwaukee where the Socialists controlled the city government and the Socialist candidates for judicial and school board offices were defeated by a combination of the Democratic and Republican parties. Judge W. H. Halsey was reflected circuit judge by about 10,000 votes over Judge J. C. Kleist, the Socialist candidate. The Socialists made a campaign on the issue of the Catholic Church participating in the election. Two Socialists were elected members of the school board.

LEGISLATION. The legislature which ended its session July 10, 1911, passed an unusually large number of important laws. These laws were passed under the leadership of Governor McGovern. Three important measures were passed affecting industrial conditions. One of these was the Workmen's Compensation act. This act was drafted in accordance with conclusions reached after careful investigation and the securing of best advice of authorities in America and Europe. The act gives the employer or employee option to take his chance in an ordinary lawsuit if he prefers, in case of accident, but it requires that in the lawsuit ordinary common law defenses shall not be held valid. The measure provides for an automatic method by which the State will assure, on the one hand, proper compensation to the employee, and on the other, a reasonable and fixed amount of the expenses of the employer for any accident. A second important measure affecting industrial conditions was the creation of an industrial commission to administer all labor laws, including those concerning workmen's compensation, factory regulations, hours and conditions of labor among workmen and children, a truancy and other statutes falling in this broad classification. The third industrial measure was the law limiting the working hours of women in gainful occupations to ten in the daytime and eight at night. Important measures relating to elections and the government were also passed. One of these requires complete records of all legislative committee meetings, including votes of committee members on all bills and amendments. The corrupt practices legislation was made more strict, and in addition to amendments to the direct primary law, a limited form of initiative, referendum, and recall was adopted. Cities are empowered to have recourse to the initiative and referendum on charter amendments and ordinances and to apply the recall to all municipal officers with the exception of judges. The fullest power was given to cities to govern themselves under special charters. Important measures were passed also relating to the conservation of water power and reforestation. An income tax law was adopted which applies to incomes as small as \$800. In the case of married

persons, however, the minimum amount is \$1200. The question of woman suffrage was referred to the people to decide in the general elections of 1912.

STATE OFFICERS. Governor, F. C. McGovern; Lieutenant-Governor, Thomas Morris; Secretary of State, James A. Frear; Treasurer, Andrew H. Dahl; Attorney-General, L. H. Bancroft; Superintendent of Education, C. P. Cary, Commissioner of Insurance, H. L. E. Kern; Commissioners of Public Lands, Secretary of State, Attorney-General, and State Treasurer—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, John B. Winslow, Dem.; Associate Justices, William H. Timlin, Dem.; R. G. Siebecker, Dem.; A. J. Vinje, Rep.; Rouje D. Marshall, Rep.; J. C. Kerwin, Rep.; John Barnes, Dem.; Clerk, Clarence Kellogg, Rep.

STATE LEGISLATURE, 1911. Senate, Republicans, 27; Democrats, 4; Social Democrats, 2; Assembly, Republicans, 59; Democrats, 29; Social Democrats, 12; joint ballot, Republicans, 86; Democrats, 33; Social Democrats, 14. Republican majority, Senate, 21; Assembly, 18; joint ballot, 39.

WISCONSIN, UNIVERSITY OF. An institution of higher learning at Madison, Wis., founded in 1848. The number of students enrolled in the various departments of the university in 1910-11 was 5499. Of these 3934 were men and 1565 were women. The enrollment in the various departments was as follows: College of letters and science, 1409 men and 1146 women; college of agriculture, 1094 men and 110 women; college of engineering, 797 men and 1 woman; law school, 156 men and 1 woman; library school, 18 women; school of music, 2 men and 67 women; graduate school, 464 and 219 women; medical school, 6 men and 2 women; pharmacy course, 46 men and 1 woman. The faculty numbered 486 teachers, with 31 teachers in the extension club. During the year \$31,735 were received as the Carl Schurz Memorial Fund. The amount of productive funds of the university, which is supported almost entirely by the State, was \$650,298, and the income for 1910-11 was \$1,854,910. The library contains about 140,000 volumes. President, 1911, Charles R. Van Hise, Ph. D.

WISTER, OWEN. See **LITERATURE, ENGLISH AND AMERICAN, Fiction.**

WOLVERHAMPTON, Sir HENRY HARTLEY FOWLER, Viscount. An English public official, died February 25, 1911. He was born at Sunderland in 1830 and was educated privately, his father being a minister of the Wesleyan Methodist Connection. He was trained for the legal profession and was admitted as a solicitor in 1852. He became successful as a practitioner and after devoting some years to his profession he entered the town council at Wolverhampton. He was elected mayor of the borough in 1863. At the general election of 1880 he was elected to the House of Commons as a Liberal. In 1884 he was offered the under-secretaryship at the Home Office, which he accepted. When Parliament was reassembled in 1886 he was already a conspicuous figure in politics and he was appointed financial secretary, probably the most important post outside the cabinet. He was not altogether in sympathy with Mr. Gladstone's Home Rule bill, but loyally supported it. From 1886 to 1892 he took little part in active de-

liberations of Parliament. When in the latter year Mr. Gladstone came again into power, Sir Henry was appointed president of the Local Government Board and in the reconstructed government after Mr. Gladstone's retirement, he became secretary of state for India, 1894-95. He did not take a conspicuous part in the deliberations of Parliament from 1895 to 1900. He heartily supported Lord Rosebery during the long struggle over the Liberal leadership. During the South African War he refused to associate himself with Sir Henry Campbell-Bannerman and others, who had denounced the assertion of British power after the challenge of the Boers. He opposed the education bill as a representative of the militant non-conformists, but made efforts to bring about a compromise which, however, were unsuccessful. In 1905 when Campbell-Bannerman formed his government before the general election, Sir Henry was made chancellor of the Duchy of Lancaster. In 1908 he accepted a peerage and took the title of Viscount Wolverhampton. In October, 1908, he became lord president of the Council. Lord Wolverhampton was prominent in the Wesleyan Methodist body.

WOMEN IN INDUSTRY. LEGISLATION. A considerable number of new laws were enacted in 1911, extending the legal protection of women workers as to hours and wages. The most prominent feature of the progress was the extensive agitation for eight-hour laws. Bills providing for eight-hour days were enacted in California and Washington; and they were defeated in Illinois, Ohio, Wisconsin, and Colorado. The California law forbids the employment of women for more than eight hours in any one day or forty-eight hours in one week, in manufacturing, mechanical, mercantile, telegraph or telephone establishments, laundries, hotels or restaurants, or by express or transportation companies. An exemption is made of harvesting, curing, canning, or drying of perishable fruits and vegetables. The Washington law is slightly less comprehensive and makes similar exemptions. Wisconsin passed an eight-hour law applying to work between eight P. M. and six A. M. Laws providing for a nine-hour day and a fifty-four-hour week were passed in Nebraska and Utah. Massachusetts reduced the hours per week from fifty-six to fifty-four. Ten hour laws were passed in Ohio and Wisconsin, the hours per week in the former State being limited to fifty-four and in the latter to fifty-five. Moreover, the ten-hour law of Illinois was extended. South Carolina provided for a twelve-hour day and a sixty-hour week; and Georgia and North Carolina reduced the hours per week from sixty-six to sixty.

Other enactments included the first American law forbidding the employment of women immediately before or after childbirth. This was passed in Massachusetts and was effective January 1, 1912. It provided that no women should be employed in mercantile, manufacturing, or mechanical establishments within two weeks before or four weeks after childbirth. The maximum penalty for violation was put at \$100. This law still falls short of the best European legislation whereby maternity insurance is provided for the period of unemployment. Connecticut and Utah forbade the employment of women in any saloon. Separate toilets and dressing rooms were required in Nebraska; and seats in mercantile establish-

ments in Maine, Ohio, and Washington. The Ohio law moreover required that suitable lunch rooms separate from work rooms, must be provided in certain establishments including factories, workshops, business offices and bakeries and not less than thirty minutes must be given for the lunch period; where lunch rooms cannot be provided at least one hour must be allowed.

GOVERNMENT REPORT. The most comprehensive and detailed report ever made upon labor conditions in the United States is the *Report on Condition of Woman and Child Wage-earners in the United States*. This was undertaken by the commissioner of labor under the authority of an act of Congress in 1907. It comprises nineteen volumes, covering all phases of the employment of women and children in all parts of the United States. It is impossible to do more than hint at the contents of these volumes, but some idea of the thoroughness of the investigation may be gained from a brief summary of volume 2. This dealt with the manufacture of mens' clothing in 244 factories employing 23,863 wage-earners in New York, Chicago, Philadelphia, Baltimore, and Rochester. These five cities produced more than two-thirds of the men's ready-made clothing. The report showed that 96.6 per cent. of the factories in New York City employing children, were violating some provision of the child labor laws, as compared with 57.1 per cent. in the others. At least one-third of the New York establishments were violating laws regulating the hours of employment of women. In fifty establishments 4400 women and children workers were not allowed to use elevators. In 134 factories there were no dressing rooms; toilet conditions ranged from "filthy to bad" in from one-fourth to two-thirds of the establishments.

Wages everywhere were found to be low, \$10 per week being the upper limit. The proportion of women workers earning less than \$6 per week ranged from 31.4 per cent. in Rochester to 52.4 per cent. in New York, 58 per cent. in Philadelphia, and 77 per cent. in Baltimore. Marked differences in rate of pay were found even in the same city, there being no standard wage anywhere. Women uniformly received less than men for the same work; and home-workers received less than shop-workers. The average weekly wages for the latter were found to be \$7.30 in Chicago, \$7.04 in Rochester, \$6 in New York, \$5.75 in Philadelphia, and \$4.74 in Baltimore. Hours per week were shortest in Chicago and longest in Baltimore; so that long hours and low weekly wages went together. Hourly wages are also given. Of the nearly 2400 workers in these establishments, 49 per cent. were women, most of whom were low-grade hem-sewers. Only 16 per cent. of the women in New York establishments were operators or highest-grade workers; while 33 per cent. of those in Chicago were operators. Women were found to earn about 70 per cent. as much as men in the same processes in Chicago and 60 per cent. as much as in other cities. Though the earnings of women were found to increase up to the age of forty, there was little increase after the age of twenty-five; the increase of earnings with age for men was found to be greater and to extend over a longer period of time.

The nationalities employed varied with the city. In New York, Italian women constituted

practically all the home-workers, and about 70 per cent. of the shop-workers; about 15 per cent. of the latter were Hebrews. Germans were most numerous in Rochester and Italians in Baltimore; but in Chicago, Bohemians, Poles, Italians, Hebrews, Scandinavians, and Germans were found in tolerably equal proportions. In all nearly two-thirds of the women were foreign-born, and more than one-fourth were native-born of foreign parents, only 7.5 per cent. being Americans of native parentage.

The home-workers constituted the hardest worked and lowest paid of those engaged in the men's clothing industry. Their average yearly earnings were found to be only \$126; yet 95 per cent. had been married and 60 per cent. were at least thirty years old. About seven-eighths of the home-workers had husbands at work, though in almost all cases at less than ten dollars per week. Though most of the home-workers families had small children, the average family income was only \$515 per year of which the husband earned only one-half. The investigators found that 44.7 per cent. of the finishing work in New York city was done at home and concluded that, "undoubtedly the actual amount of home finishing is greater today than ever." In this connection the report stated that in spite of many laws "it has proved impossible to guarantee that clothing made or finished in homes is free from disease or vermin."

The titles of the first twelve volumes of this report are as follows: *Cotton Textile Industry; The Clothing Industry; The Glass Industry; The Silk Industry; Wage-Earning Women in Stores and Factories; The Beginnings of Child Labor Legislation in Certain States; A Comparative Study; Conditions under which Children leave School to go to Work; Juvenile Delinquency and its Relation to Employment; History of Women in Industry in the United States; History of Women in Trade Unions; Employment of Women in Metal Trades; Employment of Women in Laundries*. Among the subjects treated in the remaining seven volumes are: *Relation of Occupation to the Criminality of Women; Causes of Death among Woman and Child Cotton-Mill Operatives; and the Employment of Women and Infant Mortality*.

EARNINGS. One of the several private studies of the earnings of women was published under the title "The Living Wage of Women Workers" by the department of research of the Woman's Educational and Industrial Union. This was based on 450 schedules of incomes and expenditure in Boston. The investigator found that "the increased income up to \$8 is used to provide a better dietary. The slighter increase both in regular board and extra food in the next higher division (that is, \$9 to \$11 per week) would seem to indicate that the most pressing needs in these directions are met at about a \$9 wage." In general the investigator concluded that a decent living was within the reach of those women receiving from \$9 to \$11 per week. The average expenditures of the women of this group amounted to \$504.28 for the year studied, distributed as follows: food \$189.70, rent \$74.81, clothing \$88.99, health \$22.09, savings \$31.63, and miscellaneous \$117.06. The conclusion seemed clear that a wage of \$10 a week was necessary in Boston to provide a tolerable living and the absolutely necessary minimum savings for adversity.

MINIMUM-WAGE BOARDS. Following the enactment of the English law of 1909, effective early in 1910, authorizing the establishment of minimum-wage boards in various industries, some demand for similar legislation developed in this country. Early in February, 1911, the Massachusetts State Federation of Labor introduced a bill providing for a commission to investigate this subject. Shortly thereafter a bill was introduced in the Minnesota legislature providing for the establishment of "industrial boards for the protection of wage-earning women and minors." By the middle of February a bill was introduced into the Wisconsin legislature at the instigation of the State Consumer's League providing for minimum-wage boards. The Minnesota bill provided for boards to be composed of representatives of employer, employees and the public; there was to be a separate board for each trade, these boards would have power to fix minimum time and piece wages, which were to be compulsory on all the employers in the trade. The State board of arbitration was authorized to establish such a board in any industry employing women or minors upon its own initiative or when petitioned by twenty-five persons affected. These boards were to consist of representative members and appointed members, the former named by the two sides and the latter by the State board of arbitration; one-fourth of all must be women. The industrial boards thus created were to be empowered to create district boards with considerable powers in their respective districts. Neither the Minnesota nor the Wisconsin bill was passed.

In Great Britain minimum-wage boards have been established in chair-making, in certain branches of lace-making, in card-board box making, and in the men's ready-made clothing industry.

ORGANIZATION. The principal organization for the promotion of group effort among the women workers in this country is the National Woman's Trade Union League. This now has branches in all principal cities and carries on various lines of activity designed to bring women workers together and otherwise to promote their welfare. Its demands include the following: an eight-hour day, the elimination of night work; separate toilet rooms; increased sanitation and safety; seats and permission to use them; pensions for working mothers during the lying-in period; more women factory inspectors; women physicians in factories; and a minimum-wage law for sweated industries.

BIBLIOGRAPHY. The great attention being given to the economic and social status of woman has resulted in a very large output of literature bearing on her position in industrial life. In addition to the very considerable amount of magazine literature the following books may be noted: Abbott, *Women in Industry, a Study in American Economic History*; Mussey (ed.), *The Economic Position of Women*, a symposium of twenty-eight contributors; Dorr, *What Eight Million Women Want*; Kingsbury (ed.), *Labor Laws and Their Enforcement, with Special Reference to Massachusetts*; Schreiner, *Women and Labor*; Bosworth, *The Living Wage of Women Workers*; Chaboseau, *La réglementation du travail des femmes et des enfants aux Etats-Unis*; Wright, *Sweated Labour and the Trade Boards Act*.

WOMAN SUFFRAGE. UNITED STATES.

The chief event in the record of the woman suffrage movement in the United States during the year was the adoption by California on October 10, 1911, of the equal suffrage amendment, conferring the vote on about 400,000 women. This brought the number of States having woman suffrage to six, the others being Wyoming (1890), Colorado (1893), Utah (1896), Idaho (1896), and Washington (1910). In both Wyoming and Utah, however, women had voted under the Territorial government for many years. By the close of 1911 four other States had undertaken to submit the question to the people in 1912, namely, Kansas, Wisconsin, Oregon, and Nevada. Bills for the submission of a woman suffrage amendment were introduced in 1911 in the legislatures of twenty-two States, and in most instances received larger votes than ever before. On the whole the year was marked by unusual activity and success on the part of the suffragists. For the important part played by women voters in the elections of California and Washington, see the articles on those States. In New York City popular interest was aroused by a suffrage parade on May 5, when 3000 women, including many of prominence, marched down Fifth Avenue, with banners and floats, between lines of spectators extending over two miles. Women possess the school suffrage in more than half the States, the municipal suffrage in Kansas, the tax-paying suffrage in Louisiana, Iowa, Michigan, Delaware, and Montana, and in the villages and many third-class cities of New York.

FOREIGN COUNTRIES. For an account of the continued violence of the militant suffragists in Great Britain and of the government's position on the suffrage question, see *GREAT BRITAIN*, paragraphs on *History*. In Norway, the bill to abolish the property qualifications for the full suffrage was defeated in 1911, lacking five votes of the requisite two-thirds majority. For the first time a woman sat in Parliament (see *NORWAY, History*). In Sweden the suffragists were active in supporting the Liberals and Social Democrats and contributed materially to the Conservative defeat (see *SWEDEN, History*). In France, Parliament having appointed a committee to investigate the workings of woman suffrage in the countries in which was adopted, a full report on the subject, favorable in its findings, was published in 1911. In Prussian Silesia an unusually large number of women availed themselves of the privilege of woman landowners to vote by proxy in communal matters. In Switzerland Zurich and Geneva gave women the right to vote for members of the board of trade and to serve as members themselves, and the latter city gave them the right to vote in church matters.

WOOL. According to the annual wool review there were on April 1, 1911, 36,761,000 sheep fit for shearing in the United States, a decrease of 2,238,500 from 1910. This decrease occurred mainly in the sheep of the Far Western States, whereas in most Southern and Central States there was a slight increase. The estimate of the domestic clip for the year 1911 is 277,547,900 pounds, a decrease of 3,814,850 pounds, and of pulled wool 41,000,000 pounds, or 2,818,850 pounds less than 1910. This total wool product is equivalent to 139,895,195 pounds of scoured wool valued at \$66,571,337, or nearly \$6,000,000 less than that of the previous year.

The average weight of domestic fleeces was 6.98 pounds, and the average shrinkage 60.4 per cent. The average value per scoured pound of the domestic wool clip for 1911 is set at 47.7 cents, as compared with 51 cents in 1910, 63.6 cents in 1909, 46.6 cents in 1908, and 62.3 cents in 1907.

Like the previous year, 1911 was one of severe trial to the American growers, and has been reflected not only in the shrunken number of sheep but in the fall in value. The principal cause assigned for this is the agitation due to the supposed exigencies of party politics, as the year opened with a good wool market and the spring clip was in good condition. There is no export market for wool, and a high tariff on wool is of no value to the wool producer unless the American woolen mills are running.

At the close of the year the wool market was not encouraging. The future of the sheep industry in this country seems to be in the management of small flocks in the corn belt or in the East, rather than extremely large ranges. A recent development of the industry has been the warehouse idea, which aims to furnish the grower with storage facilities for carrying his wool until a satisfactory market can be secured. Another development is the scouring mill in the wool-growing regions, which affords the grower the opportunity to have his product scoured and sold to the manufacture on its merits.

According to the preliminary statement of the Thirteenth Census, there was a decrease of 3.8 per cent. in the number of fleeces between the years 1900 and 1910, but the average weight of the fleece increased one half pound, so that there is an actual increase in the production of wool during the decade, and also an increase in value of 6 cents per pound. But, summing up the results on the whole there was no material change in the sheep industry between the years 1900 and 1910, as a decrease in some States was compensated for by increases in others.

In Australia a record clip was shown for the fiscal year ending June 30, 1911. The overseas exports, of which Europe took 91 per cent., amounted to 646,838,877 pounds from Australia and 173,173,572 pounds from New Zealand. The total value exported from the two countries amounted to \$150,377,380. The previous year was exceeded by about 3,000,000 pounds, or nearly double the figures of 1903 and 1904. The flocks in Australia contained fewer sheep than twenty years ago, but the amount of wool shown is larger and the clip is superior in quality, as improvement in breeding has produced larger and better fleeces, the average weight of fleece now being 7 pounds 4 ounces each. The average price for the year for Australian wool was 18 cents, as compared with 19½ cents in 1909 and 1910.

Australia is extending its flocks of fine wools. The long wools and coarse breeds are also increasing along the coast districts. In New Zealand, where there are twenty-four sheep for each inhabitant, a change is taking place from fine wool to coarse wools and cross-bred. In South Africa fine wools are slowly expanding, whereas in Argentina mutton breeds are expanding at the expense of fine wools. Sheep stock of all kinds seems to be gradually decreasing in Europe.

An important event to the wool industry of the United States was the report of the Tariff Board late in the year, which studied the expense account of more than 1200 American and many foreign sheep breeders, mainly producers of fine or Merino wools. It was found that the highest average cost in the production of such wool is in Ohio and contiguous territory. The lowest average cost of similar wool is in Australia. In Australia, New Zealand, and South Africa the sales of sheep and mutton practically paid the entire flock expense, and in South America all expenses within four cents on each pound of wool. But the fine wools of the Ohio region are sold bearing an average charge for production of nineteen cents per pound. In the States east of the Missouri River wool production is incidental to general farming, and in certain cases it was found that the sale of sheep and lambs nearly quite covered the flock expense where the coarser mutton breeds were grown. In the western part of the United States, where about two-thirds of the fine wools are grown, the average charge was at least eleven cents per pound. There are in the United States about 10,000,000 sheep of the coarse breeds, as against 40,000,000 of the Merino type. See **TARIFF**.

WORDSWORTH, JOHN. A bishop of the Church of England, died August 16, 1911. He was born in Harrow in 1843, the oldest son of Dr. Christopher Wordsworth, a nephew of the poet, William Wordsworth. He was educated at Ipswich and Winchester and at New College, Oxford. He was ordained a deacon in 1867 and a priest in 1869. In the following year he was made a prebendary of Lincoln Cathedral by his father who had been appointed bishop of Lincoln. Earlier even than this he had gained a reputation as a scholar. He published in 1870 *Lectures Introductory to a History of Latin Literature*. This was followed four years later by *Fragments and Specimens of Early Latin*. In 1876 he was appointed Grinfield Lecturer on the Septuagint. From 1875 to 1877 he was select preacher. In 1881 he was Bampton lecturer, taking as his subject "The One Religion, Truth, Holiness, and Peace, desired by the Nations and revealed by Jesus Christ." In 1883 he was appointed to the professorship of the interpretation of the Holy Scripture in Oriel College, Oxford, together with a canonry in Rochester Cathedral. He continued his studies in Latin with especial attention to the Latin text of the Scriptures. In 1883 was issued his first set of *Old Latin Biblical Texts*, and others were issued in 1886. From these he passed to the text of the Vulgate, in which he was chief English authority. In 1885, on the death of Dr. Moberly, he was appointed bishop of Salisbury. His knowledge of Latin was frequently made use of by the officials of the church. Special instances of this are to be found in his Latin letter to the archbishop of Utrecht on English Episcopal orders and the answer to the Papal bull *Apostolica Curæ*. On the question of extreme ritual and doctrine he maintained a scholarly and a moderating attitude, which was described at length in *The Ministry of Grace* (1901). He was himself a High Churchman, but at times of ecclesiastical agitation took no part in newspaper polemics and resented outside interference between himself and his clergy. He was considered the most learned of English bishops.

Among his writings, in addition to those mentioned are: *The Four Gospels* (with Rev. H. J. White) (1898); *The Acts* (1904); *The Episcopate of Charles Wordsworth* (1898); *Bishop Sarapion's Prayer-book* (1899), and *Teaching of the Church of England for Information of Eastern Christians* (1904).

WORKS, JOHN DOWNEY. United States senator, Republican, from California. He was born in Ohio county, Indiana, in 1847. He was reared on a farm until 16 years of age, when he enlisted in the Union army in the Civil War. He served eighteen months, until the close of the war. After studying law he was admitted to the bar and practiced his profession for fifteen years at Vevay, Ind. In 1883 he removed to California. He was appointed judge of the Superior Court of San Diego county, California, and later a justice of the Supreme Court of that State. He was for a short time in 1910 a member of the City Council of Los Angeles. He was elected United States senator by the legislature on the first ballot, receiving 92 votes out of 120. He had previously received the nomination in the primary elections in 1910. His term of service will expire in 1917.

WORKINGMEN'S INSURANCE. GREAT BRITAIN. Undoubtedly the most important piece of social legislation of recent years was the national insurance bill enacted by the British Parliament and effective May 1, 1912. This provides insurance against sickness for all wage earners and others whose annual earnings are less than \$800 a year and who are under sixty-five years of age, except soldiers and sailors (separately provided for), pensionable government employees, persons working on their own account, wives working for their husbands, and casual domestics and workers. The total number of insured is estimated at fourteen million out of some nineteen million of the wage-earning population. It provides unemployment insurance for about 2,400,000 men employed in the building and engineering trades. The law marks the combination of the reform movement which was begun by the budget controversy in 1909. In fact it is the natural culmination of the remarkable series of measures for the betterment of the conditions of the wage-earning population which began with the Workmen's Compensation act of 1897. That act was followed by others regulating the hours of labor of children and women, and of coal miners; regulating the dangerous trades; freeing trade unions from liability to suits for damages; providing old-age insurance at the expense of the State for wage earners seventy years of age; establishing minimum wages in sweating trades; creating a national system of employment exchanges. It is not too much to say that these measures are the essential part of the social and industrial revolution through which the English nation has been passing during the last fifteen years.

The administration of the sick insurance system is placed in the hands of a body of insurance commissioners having very broad powers. Weekly contributions, for the payment of which the employers alone are made responsible, are to be levied on both employer and employee. Male employees pay 4d. per week, female employees 3d., and employers for each employee 3d. The government makes an additional contribution of 2d. a week for each person insured.



Photograph by Paul Thompson, N. Y.

THE WOMAN SUFFRAGE PROCESSION IN NEW YORK, MAY 6, 1911
THE SHIRTWAIST WORKERS

For those whose weekly wages are under 2s. 6d. a minimum weekly contribution of one penny is provided. Stamps which are to be pasted on cards weekly or at regular intervals are provided as a means of payment. The payment of indemnities in the case of illness is left with approved societies as regards their own members and to county health committees as regards other persons. Under the term "approved society" come trade unions, clubs formed of policy holders of industrial insurance corporations, and friendly societies. These societies must be self-governing, non profit-making, with sufficiently large membership to give stability, and with medical treatment and money benefits. It is estimated that 86 per cent. of the insured will be members of approved societies. Persons disqualified from such society membership because of physical, mental, or moral defects will make their contributions through the post office. These post office depositors are deprived of invalidity insurance and their sick insurance benefits are relatively small. Those formulating the plan estimated the weekly expenditures per insured to be 7d. This leaves 2d., equaling the government's contribution, from which a reserve fund will be provided. This will cover the extra risks due to the uniform rate for persons of all ages. It is expected that after sixteen years this extra risk will be limited and a surplus developed from which enlarged payments may be made.

The indemnity provides free doctors and free medicines during illness; for the first thirteen weeks 10s. a week to men and 7s. 6d. to women; during the second thirteen weeks and thereafter, if disablement continues, 5s. a week to both men and women. Those paying lower contributions receive correspondingly lower benefits.

The insurance paid after the first twenty-six weeks is technically called invalidity insurance. This may continue until the recipient is eligible for an old-age pension. In addition a special maternity benefit of 13s. is provided for insured female employees and the wives of insured male employees, while in confinement, provided the mother does not return to work for four weeks. This is expected to affect one million mothers annually.

One of the most widely and enthusiastically approved features of the sickness insurance scheme is the provision that an annual appropriation of 1s. 4d. for each person insured, estimated to amount to about one million pounds per year, should be set aside for the erection of sanatoria for the treatment of persons suffering from tuberculosis or other diseases requiring institutional treatment. By this means provision will be made not only for incipient but also for advanced cases of tuberculosis, none of which can be effectively treated in the living quarters of the poor, and the latter of which, heretofore not admitted to sanatoria, are much the more dangerous from the standpoint of contagion. The administration of these sanatoria is in the hands of the local health authorities.

There are a number of interesting special provisions in the sickness insurance scheme. By provision enabling them to pay larger benefits in case their sick insurance payments fall below the normal, friendly societies are induced to keep the sickness of their members at a

minimum. The premium rates for employees getting less than 2s. 6d. a week are reduced for the employee but increased for the employer; this penalizes employers paying starvation wages. The county health committees provided for by the law are given certain powers which will enable them greatly to stimulate the activities and efficiency of the local health authorities. Medical attendance in sickness for all insured persons is to be provided by means of a contract system with physicians, such as now is operated by the friendly societies. Patients are no longer expected to save the doctor's fee by having a druggist prescribe for them, the latter function being expressly preserved to the medical profession.

The bill was widely approved when first presented except by the medical profession. This wide approval was explained by some as due primarily to the political advantages which were expected to be derived from its passage. This doubtless accounts for the unanimity of its support, even the opponents of the government offering only slight modifications in the original bill. The doctors, however, manifested the most violent opposition, mainly on financial grounds. They held indignation meetings in numerous places. Mr. Lloyd-George explained the relation of the medical profession to the new system in detail in both the House of Commons and before the British Medical Association. He took up the assumptions on which the doctors' opposition was placed and showed them to be ill founded. He pointed out that the classes mainly affected by the sickness insurance system were a source of little income but of many bad debts for the medical profession. He showed that the doctors would not be reduced to a dead level, but that, since patients were given an opportunity to choose, superior medical efficiency would win its just reward. Other writers pointed out that the bill would very greatly benefit the medical profession since the greater part of the payments provided therein would go to it. Great stress was laid upon the fact that this system for the first time introduced the right relation between the medical profession and the public health, more stress being laid on prevention than on cure. Moreover, the income of the profession will not depend on the amount and duration of sickness. The opposition of the doctors was in small part overcome by raising the compensation which they were to receive for each patient to a level considerably exceeding that previously received by friendly society doctors. Nevertheless a referendum of the 29,000 doctors of Great Britain showed that out of 20,712 votes received up to December 22, 20,419 were dissatisfied with the bill.

There was also some opposition on the part of the friendly societies who feared the loss of their self-government, particularly the loss of control of their funds and benefits. Their opposition was overcome by conceding to them the right to invest their own funds and the right to appoint the majority of the representatives on the local health committees. Moreover, any competition between the friendly societies and the industrial insurance companies is prevented by giving the right of self-government to the sick clubs of the insurance company policy holders. Though the friendly societies which become "approved" must hereafter

submit to supervision by the government and must make regular valuation of assets and liabilities, the other activities will be unaffected. It is estimated that the trade unions will receive additional income totaling \$12,000,000 under the new law.

The administration of the unemployed provisions of the law is to be supervised by the board of trade, though applying only to the trades mentioned. This board may extend the measure to new employments. The payment of indemnities shall be made through insurance officers and such other agents, including trade unions, public labor exchanges, and post office, as the board of trade may approve. The contributions for unemployment insurance are $2\frac{1}{2}$ d. from each employee, an equal sum from the employer, and an amount equal to one-third of their combined contributions to be paid by the State. The payments in case of unemployment of insured persons shall be 6s. a week in the building trades and 7s. a week in the engineering trades, beginning the second week and limited to fifteen weeks a year. No insurance is to be paid during strikes or lockouts.

Special provisions are introduced in the measure designed to induce employers to keep their force continuously employed throughout the year. Any workman who has paid an unemployment insurance premium for at least five hundred weeks may upon reaching the age of sixty receive back the difference between the amount paid in and the amount received in unemployment insurance, with interest at $2\frac{1}{2}$ per cent. This will not only make the system more attractive but also provide a fund for old age. As a means of checking deception the public labor exchanges will be used to test the opportunities for employment and the competency of the unemployed applicant. Indeed unemployed men may be given a technical training course at the expense of the insurance fund, in order to increase their industrial efficiency.

GERMANY. On May 30, a very voluminous bill of 1754 paragraphs for the codification of the social insurance regulations into one law and for the extension of the system of sickness insurance was passed by the Imperial parliament. The German system of workmen's insurance is divided into three systems—the sick insurance, the accident insurance, and the invalid insurance, the latter including old-age insurance for workmen seventy years of age and over. The sick insurance system now embraces about twenty-three thousand local organizations, with about 13,500,000 members. The number actually receiving sick aid approximates 6,000,000 per year. Sick insurance covers illness of not more than six months' duration; persons suffering for longer periods become charged to the invalid system. The sick insurance plan is on a contributory basis, the employers paying one-third and the employee two-thirds.

The accident system, which was adopted in 1884, imposes upon the employers the responsibility for compensation for injuries to employees due to accident. To meet this responsibility the employers have formed mutual insurance societies, of which there are forty-eight for agriculture and sixty-six for industries and trades. The assessments vary according to trade risks. These insurance societies have a thorough system of inspection for the plants of all policy holders and impose penalties on employers violating the rules for safety. The

third system for invalids and aged persons, adopted in 1889, now insures about 15,500,000 people. The pensions for invalidity average about \$40 per year and for old age about \$36. For this system the assessments bear equally on the employer and the employee and are paid weekly by means of stamps pasted on cards issued by the government. The total revenues of all three systems in 1909 were \$210,000,000; the disbursements \$165,000,000. The invested funds amounted to one-half billion dollars. A careful statistical estimate has shown that the combined contributions equal 6.75 per cent. of the average wages of the insured, of which the employers pay 3.68 per cent. and the employed 3.07 per cent.

The greatest objection to the system is made by certain employers who find the system burdensome; indeed the feeling is general in Germany and well-nigh universal elsewhere that the workingmen's insurance systems are a heavy handicap to German industry. Statistics show that the contributions made by iron and steel companies ranged from 14 per cent. to 47 per cent. of net profits. On the other hand the advocates of the system claim that it has not been a burden and point to the growth in population from 46,000,000 to 65,000,000, to advance from fourth to second place in the world's trade, the doubling of property values, wider diffusion of ownership, the increase in wages and savings, the decline of emigration, the increase of immigration, the betterment of public health, increased longevity, and other indications of industrial and social betterment, since these systems were inaugurated.

The new law provided for the systematic codification of the great body of legislative enactments and official regulations which have grown up in these systems during thirty years. It also provided for the extension of the system of sick insurance to farm laborers, domestic servants, and casual laborers. It was estimated that this extension would increase the contributions of employers for the sick benefits by one-half, or from \$24,000,000 to \$36,000,000 per year. In addition the bill would extend the pension system so as to include widows and orphans of insured laborers, the estimated additional expense being about \$17,000,000. The total additional expense was estimated at \$32,000,000, of which employers and workers would provide \$27,500,000. A further feature of the bill was the great extension of the benefits so as to cover death from all causes, the contributions being equal for employers and employees for this purpose. The bill sought to introduce more economical and efficient management of the sickness associations by centralizing and monopolizing the business in the hands of a smaller number of central associations. It introduced a change also in the assessments for sickness insurance. It provided that employers should contribute one-half instead of one-third and that in return they should have an equal voice with the workmen in the management. Some employers opposed this on the ground of additional expense, but others favored it on the ground that greater control by them would so economize the administration that the expense would not ultimately be increased. The bill at the same time proposed to give workmen equal representation on the boards of the accident associations which determine the ex-

tent of injury and the amount of compensation. This was looked upon as offsetting the reduced influences of the workmen in the administration of sickness insurance. At the same time an entirely independent system for the protection of persons not included in the above labor systems but having incomes of less than \$1200 was put forth by the imperial government.

ADMINISTRATIVE DEFECTS OF GERMAN SYSTEM. The workmen's insurance schemes and experiences of Germany enacted in 1881 have long been objects of study and imitation in other countries. The usual understanding has been that this sickness insurance scheme has been remarkably successful and very efficiently administered. Testimony is still quite uniform that it is successful in preventing the pauperism of workers through illness. But Herr Ferdinand Friedensburg, formerly president of the Senate of the Imperial Insurance Office for twenty years, has recently published a lengthy criticism of the internal workings of the German system. His aim was to expose the evils of the system as administered and not to attack its fundamental principles. He found the one chief source of evil in the administration to be the spirit of charity in which the system is administered. He found that this spirit of charity crept in and contaminated the system from the very beginning. The result has been an enormous increase in injuries for which compensation is given, in the subterfuge of malingering in cases of sickness, and in the number of appeals which are made from original judgments. He points out that employers endeavor in every possible way to escape their burdens and that the annual collection of enormous fines from them is not sufficient to prevent efforts at evasion. Dr. Friedensburg says that employers justly complain of the excessive cost of the insurance system and expresses his belief that it reacts injuriously on the empire's industries. The cost amounts to about two million marks a day. Dishonesty and fraud are everywhere present. He shows that a special class of agents for the fabrication of pensions and compensation claims has developed. No serious attempt is made, however, to suppress these frauds. The writer also shows that neither socialism nor pauperism, the two evils against which the State insurance system was directed, has been destroyed. Indeed, he believed that pauperism had actually increased, basing his contention on the increase in poor expenditures. He concluded that the system is a vicious circle, segments of which are charity, pauperism, and fraud. See SWITZERLAND.

BIBLIOGRAPHY. So extensive has become the movement to provide insurance against sickness, invalidity, unemployment, and old age, that considerable literature bearing on it has been put forth. A number of documents bore on the Lloyd-George insurance scheme in Great Britain. We note the following: *The National Insurance Bill summarized*, by L. W. Evans; *The People's Insurance explained*, by D. Lloyd-George; *National Health Insurance*, by E. J. Schuster; *The National Insurance Bill and the Industrial Agent*, by H. K. Wood. Of a more general nature were: *Sickness and Invalidity Pensions*, by P. Alden; *Social Insurance* (1910), by H. R. Seager; *La nationalisation des assurances*, by E. Buisson; *Die Krankenversicherung der Reichversicherungsordnung nach den Beschlüssen der Reichstagskommission*, by G. Hoch; *Die*

Sozialversicherung als Organisationsproblem by L. Verkauf; *Die Arbeiterversicherung in den Kulturstaaten* (1910), by J. Witonshi; *Social Insurance*, by G. H. Knibbs; *The Prevention of Destitution*, by Sidney and Beatrice Webb.

WORKMAN, FANNY BULLOCK. See EXPLORATION.

WORLD ALLIANCE, BAPTIST. See BAPTISTS.

WORLD PEACE FOUNDATION. See ARBITRATION.

WORLD'S COMMERCE, 1911. The world's international trade has doubled in value in the last 5 years, and shows for 1911 a larger total than ever before recorded.

Figures prepared by the Bureau of Statistics of the United States Department of Commerce and Labor indicate that the international commerce of the world in 1911 aggregated approximately 35½ billion dollars, against 30 billions in 1907, 24 billions in 1904, 20 billions in 1901, and 16½ billions in 1896. These figures are in all cases a combination of both imports and exports for all the countries for which data are available, and since all articles exported from one country become the imports of some other country the value of the merchandise actually moved may be assumed to be approximately half the sum obtained by a totalization of the imports and exports. Taking the export figures alone, the total for 1911, for the countries for which data are available, will probably approximate 17 billion dollars, against 14½ billions in 1907, 11½ billions in 1904, 9½ billions in 1901, and 7½ billions in 1896. The imports, although composed of articles already recorded as the exports from some other part of the world, are valued considerably higher when imported than the valuation of the same articles when exported, since in most cases cost of transportation and, in some cases, other expenses are added in determining the value of the merchandise when imported. As a result, the valuation of imports into the principal countries of the world in 1911 will probably aggregate about 18½ billion dollars against 16 billions in 1907, 13 billions in 1904, 11 billions in 1901, and 9 billions in 1896. The international commerce of the world, showing aggregate value of imports and exports of all countries for which trade statistics are available, is given below:

Year	Imports	Exports	Total
1896	..\$8,807,000,000	\$7,715,000,000	\$16,522,000,000
1901	..10,839,000,000	9,625,000,000	20,464,000,000
1904	..12,811,000,000	11,322,000,000	24,133,000,000
1907	..15,988,000,000	14,341,000,000	30,329,000,000
1910	..17,623,000,000	16,007,000,000	33,630,000,000
1911*	..18,500,000,000	17,000,000,000	35,500,000,000

* Estimated.

WOOD ALCOHOL. See ALCOHOL.

WOOD, ARTIFICIAL. See CHEMISTRY, INDUSTRIAL.

WRIGHT, ORVILLE. See AERONAUTICS.

WRIGHT, WILBUR. See AERONAUTICS.

WUCHANG. See CHINESE EMPIRE.

WURTTENBERG. See GERMANY.

WUSTMANN, GUSTAV. A German philologist and historian, died January, 1911. He was born at Dresden in 1844. After studying in the Kreuzschule in that city, he studied philology at Leipzig from 1862 to 1866. He then taught at the Nikolai Gymnasium in Leipzig until 1881, when he was appointed director

of the Municipal Archives and city librarian. From 1879 he was also associate editor of the *Grenzboten*. In 1870 he published *Appelles' Leben und Werke*. He followed this with several valuable contributions to the history of Leipzig. In his *Allerhand Sprachdummheiten* he endeavored to simplify the German language. The volume aroused much opposition. In addition to other works he published a collection of poems, and edited many important works in philology.

WYMAN, WALTER. An American public official, surgeon-general of the United States Public Health and Marine Hospital service, died November 21, 1911. He was born in St. Louis in 1848 and graduated from the University of St. Louis in 1866. He graduated from Amherst College in 1870 and from the St. Louis Medical College in 1873. In 1876 he entered the Marine Hospital service, serving successfully in St. Louis, Cincinnati, Baltimore, New York, and Washington. He gave special attention to the physical conditions affecting seamen of the merchant marine and was instrumental in having laws passed for their benefit. He also brought to the attention of the authorities cruelties imposed on deck hands on western rivers and on crews of oyster vessels in Chesapeake Bay. Through his efforts a hospital was established for the latter. The most notable of his achievements, however, was the passage of the present quarantine laws of the United States in 1893. He had general charge of the administration of these laws. He suggested and established the first government sanatorium for consumptives at Ft. Stanton, New Mexico, and was instrumental in securing the enactment of laws relating to quarantine, quarters, and food for seamen, government regulations, and the manufacture and sale of serum, toxins, etc., and the establishment of a leprosy investigation station at Havana, the creation of a hygienic laboratory at Washington, the establishment of a bureau of public health, etc. He had absolute control of all sanitary regulations in the Philippines, Panama, Porto Rico, and wherever the United States government ruled. He was the author of many pamphlets dealing with public health. He was chairman of many important organizations for the investigation of health conditions and was a member of many learned societies. He was supervising surgeon-general of the United States Marine Hospital service from 1891 to 1902 and was surgeon-general of the United States Public Health and Marine Hospital service from July 1, 1902, until the time of his death.

WYOMING. POPULATION. The Thirteenth Census showed a population in 1910 of 145,965, compared with 92,531 in 1900, an increase of 57.7 per cent. in the decade. The principal cities with their population in 1910 and 1900 are as follows (the figures in parentheses are for 1900): Cheyenne, 11,320 (14,087); Sheridan, 8,408 (1559); Laramie, 8,237 (8,207); Sweetwater, 5,778 (4,363).

AGRICULTURE. The Thirteenth Census included statistics of agriculture. These are of date of April 15, 1910. On that date the farms in the State numbered 10,987, compared with 6,095 in 1900. The land in farms was 8,543,010 acres, compared with 8,124,536 in 1900. The improved land in farms was 1,256,160 acres, compared with 792,332 acres in 1900. The average acreage per farm was 777.6, compared with 1333 in 1900. The total value of farm property,

including land, buildings, implements, and machinery, domestic animals, poultry, and bees, was \$167,189,081 in 1910, compared with \$67,477,407 in 1900. The farms operated by owners and managers numbered 10,090 and those operated by tenants, 897. Of the farms operated by owners, those free from mortgage numbered 7815; those under mortgage, 1923. The native white farmers numbered 9019; foreign-born white, 1903; negro and other non-white, 65. Of the non-whites 44 were Indians, 19 negroes, 1 Chinese, and 1 Japanese. The domestic animals, poultry, and bees were valued at \$65,605,510 in 1910, compared with \$39,145,877 in 1900. The cattle numbered 767,427, valued at \$22,697,387; horses, 156,062, valued at \$12,426,838; mules, 2045, valued at \$248,572; swine, 33,947, valued at \$301,716; sheep, 5,397,161, valued at \$29,666,228. Poultry of all kinds numbered 341,054, valued at \$194,078. The acreage, production, and value of the principal crops in 1910 and 1911 will be found in the following table:

	Acreage	Prod., bu.	Value
Corn .....1911	13,000	195,000	\$148,000
1910	11,000	110,000	73,000
Wheat .....1911	69,000	1,794,000	1,687,000
1910	56,000	1,400,000	1,330,000
Oats .....1911	190,000	6,555,000	3,278,000
1910	161,000	5,152,000	2,576,000
Rye .....1911	2,000	40,000	36,000
1910	1,000	18,000	15,000
Potatoes ..1911	10,000	420,000	588,000
1910	9,000	900,000	738,000
Hay .....1911	380,000	a 698,000	7,138,000
1910	300,000	720,000	9,000,000

a Tons.

MINERAL PRODUCTION. The production of coal in Wyoming in 1910 exceeded all previous records in quantity and value. From an output of 6,393,109 short tons valued at \$9,896,848 in 1909, the production increased to 7,533,088 short tons, valued at \$11,706,187. The increase was 1,139,979 short tons in quantity and \$1,809,339 in value. The gain in output and the advance in price were due to the shortage of coal for railroad, manufacturing, and domestic use in the States of the East, caused by a six months' strike among the miners in the Central and southwestern States. The increase in production in 1910 was general throughout the State. The most important increases were in Sheridan, Sweetwater, and Uinta counties. The number of men employed in the production of coal in the State during the year was 7771. There were strikes in the State during the year, but they affected only 1196 men, and their idleness did not appreciably affect production.

Some copper is produced in the State. The output in 1910 was 217,127 pounds of blister copper, as compared with 433,672 pounds in 1909. The encampment district, the most important producer, was not active in 1910 as the principal company was engaged in litigation which prevented the operation of its property.

The State produces a small amount of gold and silver. In 1910 the output of gold was 1478 fine ounces, valued at \$3199. The silver production was 1478 fine ounces, valued at \$798. In 1911 the gold production was 909 fine ounces, valued at \$18,791 and the silver production was 1009 fine ounces, valued at \$555.

MANUFACTURES. The Thirteenth Census included statistics of the manufactures in the

State. These figures covered the calendar year 1909. The results will be found summarized in the table below. While the value of the products of the manufacturing industries are inconsiderable in bulk, they show a marked increase in the five year period 1904 to 1909. In that time the establishments increased from 169 to 268, while the capital more than doubled. The manufactures having the largest value of products are those connected with cars and general shop construction and repairs by steam railway companies. These products were valued at \$2,337,000. Next were lumber and timber products, valued at \$751,000; flour and gristmill products, \$741,000; printing and publishing, \$490,000. The total number of persons engaged in manufactures in the State in 1909 was 3393, of whom 3313 were male and 80 female. The prevailing hours of labor in the manufacturing industries of the State ranged from 60 to 72 per week, or from 10 to 12 a day.

The following table gives a summary of the results of the census for the calendar years 1909 and 1904, with the percentage of increase for the decade:

	Number or amount 1909	1904	Increase 1904-1909
Number of establishments	268	169	58.6
Persons engaged in manufactures	3,393	2,163	56.9
Proprietors and firm members	263	150	75.3
Salaried employees	263	179	46.9
Wage earners (average number)	2,867	1,834	56.3
Primary horsepower	7,628	3,604	11.7
Capital	\$6,195,000	\$2,696,000	129.8
Expenses	5,594,000	3,189,000	75.4
Services	2,392,000	1,467,000	63.1
Salaries	311,000	206,000	51.0
Wages	2,081,000	1,261,000	65.0
Materials	2,608,000	1,301,000	100.5
Miscellaneous	594,000	421,000	41.1
Value of products	6,249,000	3,523,000	77.4
Value added by manufacture (value of products less cost of materials)	3,641,000	2,222,000	63.9

FINANCE. The report of the State treasurer for the fiscal year 1911 shows total receipts in the treasury from all sources during the year of \$1,069,970. The total disbursements amounted to \$967,568. About one-half the total receipts comes from the direct property tax. Aside from this source of revenue the commissioner of public lands furnishes the largest source of income, \$255,469. The largest single item of expense is that for the maintenance of the State penal and charitable institutions, which amounts to \$182,808.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the State Hospital for the Insane at Evanston, the Wyoming Penitentiary at Rawlins, Wyoming Soldiers' and Sailors' Home at Buffalo, the Big Horn Hot Springs Reserve at Thermopolis, the Wyoming General Hospital at Rock Springs, the Wyoming General Hospital at Sheridan, the Wyoming General Hospital at Casper, and the Home for the Feeble-Minded and Epileptic at Lander.

POLITICS AND GOVERNMENT. The legislature met in 1911 and passed several important measures. Among these were a joint resolution submitting to the people an amendment to the constitution establishing the initiative and referendum, and an act providing for the nomination

of candidates for public office by direct primary. On January 25, Clarence D. Clark was reelected to the Senate by the legislature.

STATE OFFICERS. Governor, Joseph M. Carey; Secretary of State, F. L. Houx; Treasurer, J. L. Baird; Auditor, R. B. Forsythe; Adjutant-General, M. C. Barkwell; Attorney-General, Douglas A. Preston; Superintendent of Public Instruction, Rose Bird—all Democrats, except Baird, Barkwell, and Forsythe.

JUDICIARY. Supreme Court: Chief Justice, Cyrus Beard; Associate Justices, Richard H. Scott, Charles N. Potter; Clerk, W. H. Kelly—all Republicans.

STATE LEGISLATURE, 1911. Republicans, Senate, 19; House, 29; joint ballot, 48. Democrats, Senate, 8; House, 27; joint ballot, 35. Republican majority, Senate, 11; House, 2; joint ballot, 13.

The representatives in Congress will be found in the article UNITED STATES, Congress.

WYOMING (SHIP). See BATTLESHIPS.

XERASE is a mixture of specially prepared dry beer yeast 150 parts, grape sugar 20 parts, white bole 125 parts, and a mixture of nutritive salts 3 parts. It is a yellowish-gray powder having a weak odor of yeast and a salty taste. It is only slightly soluble in water and resists ordinary atmospheric conditions. This mixture is said to be absorbent on account of the bole and induces fermentation owing to the sugar and salts. The yeast is said to have a bactericidal action on pus-producing organisms. The mixture is useful in inflammations and ulcerations of mucous membranes and in the treatment of putrid wounds, ulcers, inoperable cancer. It may be applied as a powder by insufflation, or inserted into the mucous cavities in a gelatin capsule.

YALE FORESTRY SCHOOL. See FORESTRY.

YALE PERUVIAN EXPEDITION. See EXPLORATION.

YALE UNIVERSITY. The total number of students in all departments of the university in 1911-12 was 3229, divided as follows: Graduate school, 408; college, 1236; Sheffield Scientific School, 1118; art school, 579; music school, 94; forest school, 57; department of theology, 101; department of medicine, 63; department of law, 173. On the faculty were 524 members, of whom 127 were professors, 89 assistant professors, 138 instructors, 71 assistants in instruction, and 99 assistants in demonstration. The total gifts and bequests to both income and principal of the funds of the university for the year 1910-11 amounted to \$1,134,385, as compared with \$2,398,291 in 1909-10. An important gift was one of \$20,000 made by Mr. Francis E. Loomis for research work in the chemical department. During the year the new addition to the art school was completed and the Mason laboratory of chemical engineering, the gift of Messrs. George Grant Mason and William Smith Mason of the Sheffield Scientific School, was brought nearly to completion. Work progressed also on the new Sloane physics laboratory, the gift of Messrs. William D. Sloane and Henry T. Sloane. The total university funds at the end of the fiscal year 1911 amounted to \$13,338,765. For additional notes in regard to the university in 1911, see UNIVERSITIES AND COLLEGES.

YAPURÁ RIVER. See EXPLORATION.

YASS-CANBERRA (AUSTRALIA). See MUNICIPAL GOVERNMENT.

YOUNG MEN'S CHRISTIAN ASSOCIATION. The total membership of the association in 1911 was 934,934. The associations occupied 1697 buildings, valued at \$68,699,150, and there were 1697 paid general secretaries. In North America there were 2118 associations, with 536,037 members. In the educational classes conducted by the association there were 61,904 students; in physical work, 284,842; and in Bible classes 101,546. The North American International Committee is composed of 65 members. Alfred E. Marling, chairman; F. B. Schenck, treasurer; R. C. Morse, general secretary.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION OF THE UNITED STATES OF AMERICA, NATIONAL BOARD OF. The board includes 196 city associations, 667 student and 12 industrial and rural associations, with a membership of 228,757 young women. There are 14 territorial and State organizations.

The third biennial convention of the association was held in Indianapolis from April 19-24. In its deliberations special emphasis was placed on social questions and the convention put itself on record in favor of the living wage and improved industrial conditions for women. Among the speakers were Dr. Wilfrid T. Grenfell, President King of Oberlin College, Bishop E. H. Hughes, and Dr. Robert E. Speer.

YTROFLUORITE. See MINEROLOGY.

YUAN SHIH-KAI. A Chinese statesman who became in 1911, as a result of the revolutionary activities in China, premier of the Chinese Empire. He was born in the town of Chengchau in the province of Honan. He is of the Chinese or Han race, as distinct from the Manchu. His parents were in moderate circumstances and at the age of 19 he removed to Tientsin, where his uncle was taotai. This relative sent him to the viceroy of Shantung, who made him a member of his own family and gave him equal educational advantages with his own children. His fondness for military life resulted in his accompanying the viceroy of Shantung to Korea as a petty military officer. Here he became familiar with Korean politics. His work in Korea gained the favorable notice of Li Hung Chang, who at that time was in power and the latter soon appointed Yuan resident-commissioner of trade in Korea. This was his first official title and his power was, in fact, that of minister-resident. It is alleged that to him was due in considerable measure the Japan-China War of 1894-5. He fell temporarily into disfavor with Li Hung Chang, but by the influence of powerful friends a reconciliation was brought about and Yuan was appointed to superintend the organization of a new army. He did not himself take an active part in the actual work of organization, but engaged to assist him a German and a Norwegian officer. These men created what became famous as the "Army of the North." When Yuan took command of this body it was composed of about 5000 men. He gradually increased the number to about 12,500. Under the patronage of Li Hung Chang, Yuan's rise was rapid. He became familiar with foreign politics, although not favorably inclined toward foreigners. He came to see, however, the necessity of introducing occidental methods in Chinese affairs. During the war with Japan

he took sides with the progressives and shared the confidence of the leaders of the reform movement. At the same time he, through the influence of members of the royal family, won the favor of the dowager empress, Tzu Hai An, and she gave to him the virtual command of the Peiyang army, although he was not nominally the commander. The attempts of the emperor, Kuang-hsu, to bring about reforms by issuing a series of reform edicts in 1898 brought about strenuous opposition on the part of the Manchu officials, whom these measures would throw out of office. The emperor called upon Yuan to take command of the newly formed army and to bring the forces to Peking. In order to do so he was to dispose of Jung-lu, the nominal commander, and a great favorite with the dowager empress. Instead of obeying the commands of the emperor, Yuan gave the order to Jung-lu, thus betraying the designs of the emperor into the hands of his enemies. For this act he was rewarded by the dowager empress with the junior vice-presidency of the board of works, and in 1899 she made him acting governor of Shantung. In 1900 he was raised to the full dignity of the governor of that province.

During the Boxer rebellion Yuan gained an international reputation as a result of his efforts to protect foreign legations. It was through him that the news of the outbreak reached Washington through a secret channel. He was at all times opposed to the Boxer element and it is alleged that in the early days of the uprising he invited a number of the Boxer leaders to his palace to attend a banquet. After listening to their boasts that the foreigners should be destroyed and that they could not be harmed by foreign bullets, he requested them to stand outside in a row that they might prove this miraculous power. He then called in his soldiers who were commanded to fire upon these leaders and they were all instantly killed. His attitude toward foreigners had won their sympathy and confidence, so that in the days following the Boxer uprising he was looked upon by the foreign representatives as the "strong man of China." He also had the favor of the dowager empress and his power at the beginning of 1906 was considerably greater than that formerly possessed by Li Hung Chang. He was viceroy of Chi-li, head of the Peiyang army and navy administrations, and a high official in many other bodies. During the Russo-Japanese War he was active in preserving Chinese neutrality. He undertook many reforms, including the abolition of the classical system of examinations, the encouragement of the military provisions, and stringent anti-opium legislation. As a result of intrigues of the court party, which had become hostile to him, his influence declined by the middle of 1907; and after the death of the emperor and dowager empress in August, 1908, he was dismissed from office. No reason was given for this action, but it was evident that he had become too closely identified with the anti-court party. He remained in retirement until the successes of the revolutionists in various provinces made plain the necessity of a strong man at the head of the government. The events dealing with his assumption of the office of premier will be found noted in the article CHINESE EMPIRE.

YUKON. An organized territory (since June 13, 1898) of the Dominion of Canada.

Area, 196,976 sq. miles; population June 1, 1911, 8512, compared with 27,219 in 1901. Capital, Dawson (population 3013). Yukon is administered by a commissioner (1911, Alexander Henderson) aided by an elective legislative council of 10 members. See CANADA.

ZANZIBAR. A British protectorate on the eastern coast of Africa, including the islands of Zanzibar (640 sq. miles), Pemba (340), with the small islands adjacent thereto; and also the territory which is known as British East Africa to a depth of ten miles from the coast.

ZAPATA, EMILIANO. See MEXICO.

ZIEM, FÉLIX. A French artist, died November 11, 1911. He was born at Beaume in 1821 and studied at the art school of Dijon. He traveled extensively in the Orient and Italy and on these journeys obtained most of the materials for his paintings. He was one of the last representatives of the school of painters of the romantic school, which devoted its art to depicting the life and color of the countries along the Mediterranean. Among the painters of that school he was admired for the intensity of his colors and especially the brilliancy with which he painted the skies of Venice. The most notable collection of his works is in the Petit Palais at Paris. Many of his paintings are in private collections in the United States. Several of his paintings were admitted to the Louvre although the rules of that administration do not admit the works of artists before they have been dead ten years.

ZIMBALIST, EFRAM. See MUSIC.

ZOOLOGY. As has been indicated in previous YEAR BOOKS, zoölogy at the present day, while in part carried on along the older lines of descriptive morphology, has to a very large extent turned to the experimental method from which in the present state of the science much more fundamental and important results are to be expected than from the older methods. Examples of these lines of investigation are breeding experiments bearing on the study of heredity, experimental embryology, and regeneration experiments, and studies on animal reactions to external stimuli, where the zoölogist and psychologist find their interests overlap. Since in zoölogy as in other sciences most new discoveries are published in technical journals rather than in book form, a result of the increased interest in these subjects and of the tremendous output of papers has been the establishment of journals, especially for experimental work. Much valuable material is to be found also in connection with breeding experiments in the publications of government experimental and other stations. This makes the work of the reviewer more difficult as it is impossible to be sure of having seen all important papers. What follows deals more especially with descriptive zoölogy. For more general results, see BIOLOGY. See also BOTANY, PSYCHOLOGY, FISH AND FISHERIES, ENTOMOLOGY, ORNITHOLOGY.

PROTOZOA. Woodruff continued during the year experiments which in their results corroborated those of earlier years with reference to the question of the necessity for conjugation in *Paramecium*. Under normal conditions it is probable that most individuals have an unlimited power of reproduction without conjugation. These results necessarily modify conclusions previously held concerning the meaning of conjugation with reference to the problem of sex. Jennings stated that conjugation is fol-

lowed by a period of greater variability, which may or may not be in a favorable direction. Ulehlá studied flagellar motion in various organisms, using the paraboloid condenser of Zeiss which shows small objects as brightly illuminated on a dark background. He concluded that flagellæ move backward and forward in a single plane instead of with an action of rotation, as is generally supposed.

CÉLEUTERATES. Annandale recorded the occurrence of a fresh water medusa, which he thought identical with *Limnocooida tanganyika* from a small stream in the western Ghats, India, at a distance of over 500 miles from the mouth of the stream. Jungersen described a new hydroid *Ichthyocodium sarcotretis* which covered more or less of the surface of the parasitic copepod *Sarcotretes*, attached to the fish *Scopetus glacialis*. The hydroid has polyps without tentacles, and medusæ buds which develop into free medusæ.

MOLLUSKS. Drew studied the copulation process in the squid *Loligo pealii* and stated that the spermatophores are carried by the left ventral arm of the male, and fastened in the mantle chamber or on the outer buccal membrane of the female. The eggs are not fertilized in the oviduct, but either in the mantle chamber or while the egg strings are being held by the arms of the female. The egg strings are stuck to some firm object, being pressed tightly against it by the arms. Parker decided that the foot in gastropods is used as a hold-fast by the aid of sticky secretions and by strong suction. Locomotion is with or without pedal waves, in the latter case the method being still obscure. In the former, locomotion is the combined result of local forward motion on the part of one section after another until the whole foot is moved.

CRUSTACEA. Andrews published an elaborate description of the organs of sperm transference in the crayfish *Cambarus*, in which this organ is very highly developed, as compared with other crayfish, some of which have none at all. Although the sperm of the crayfish is injured by water it is transferred by this organ without injury, under water. Herrick published, as a Bulletin of the United States Bureau of Fisheries, the "Natural History of the American Lobster," an important paper discussing the natural history of the lobster, with suggestions as to the conservation of the supply.

FISH. Parker experimented on the olfactory reactions of the killifish *Fundulus*, and concluded that the killifish, like the catfish, uses its olfactory organ for finding its food, but that the eyes are used in this activity much more than they are in the catfish. Sheldon in the dogfish found that they react almost entirely to sight stimulations, and will not find their food if their nostrils are plugged with cotton.

Bean and Weed showed that color changes in fish may occur with very great rapidity, an observation easy for anyone to confirm who can watch fish in captivity. According to Bean and Weed, the cause is mainly psychic (as fright, curiosity, anger), sexual, or due to environment. In a preserved specimen of fish, the question as to whether or not it will retain its original color is due largely to conditions of preservation, as well as to the condition of the fish at the time of preservation. Von Frisch showed that in frogs and minnows the color changes

are due to stimulation passing to the pigment cells over the sympathetic system. The luminous organs of fish were studied by Ohshima, who found that in sharks these organs lack definite numerical arrangement and are merely diffuse minute epidermal swellings partly sunk in the cuticle. In the Sternoptychidae they are arranged in a definite order and are limited in number. Their structure is complicated. Luminosity in sharks is faint and diffuse.

In the United States and in Europe much attention is paid to the fisheries question from an economic point of view. (See FISH AND FISHERIES.) The International Council for the Exploration of the Sea, maintained by several European countries in coöperation, has been especially interested in the question of the chemical composition of the sea water, and published several bulletins in 1911. These bulletins dealt also with the technique of deep-sea explorations. In this connection the study of the plankton is important, as furnishing ultimately the food of all marine organisms. Herdmann and Riddell described their plankton investigations on the west coast of Ireland, and found a curious alternation between the phyto- and the zoöplankton. The phytoplankton in the Irish Sea reaches its maximum in April and early May, when it is replaced by the zoöplankton. In the fall the phytoplankton again becomes predominant, but disappears in winter, when a very scanty zoöplankton is present. This does not hold all along the Great Britain coast, however, as conditions proved to be quite different in Scotland from what they were in Ireland. Dakim stated at the meeting of the British Association, as a result of a series of observations, that marine animals must get a large proportion of their nutriment in a chemical form, directly from the sea water. Estimating, for example, the amount of organized food in a liter of sea water, he tried to show that an animal like a sponge would have to pump through its tissues much more water than it would be reasonable to suppose it does, in order to get sufficient nutriment. Objection was made, however, that there is no substance in sea water which could serve as food, which would not be attacked and devoured by bacteria.

Werner described the sleep of *Amiurus*, which sleeps lying on its side, either at the surface or in contact with water weeds. The animals are perfectly healthy, and this posture is in no sense due to a pathological condition. *Misgurnus fossilis* and *Cobites tanja*, both in nature and in an aquarium, show the same habit. Romeis described, also, a similar observation for *Paratilapa multicolor*, the animal remaining in this position for one-half to two hours. The Danish steamer *Thor* in 1908, 1909, and 1910 collected large numbers of the young of the conger eel, varying in length from 9 mm. up to about 160 mm. They may easily be identified by characteristic markings, and through the number of somites. The spawning of the conger probably takes place in the spring and summer, in the Mediterranean and in the Atlantic off Gibraltar. The eggs of the conger have not been seen. The common eel spawns in the Atlantic, but we do not know just where

except that it must be beyond the continental slope. J. Stuart Thompson concluded as a result of experimentation that the vibratile fin of the rockling, instead of functioning as a lure, is really a device for producing a current of water over the numerous terminal or taste buds on the back of the fish. Shelford studied the distribution of fishes in a series of small lakes concentric with the head of Lake Michigan. Here he was able to trace a definite relation between the age of the lake and the character of its fish population. The young lake has comparatively clear water, but as it grows older it becomes filled with vegetation and better stocked with animal forms. The oxygen content must thus grow less with age. Thus fish which demand clear water will live in a young lake, but find conditions unfavorable in an older one, and will gradually be replaced by forms adapted to different environmental conditions. The conditions which favor the adult life of the fish are quite contrary to those favoring the development of their eggs. The practical result follows that in selecting a lake for stocking with fish, one should remember that the feeding and breeding interests are antagonistic, and should select a lake showing a proper balance between the two.

AMPHIBIA. Krefft described a Dutch East African frog, *Nectophryne tornieri*, in which the young apparently undergo their entire development inside the mother. In one female were contained thirty-four young, developed to the point where the tail had entirely disappeared. He was unable to decide as to the time and manner of fertilization of the eggs.

MAMMALS. According to Hollister, the muskrat, in spite of constant trapping, is more than holding its own in North America, and bids fair to be our most valuable fur-bearing animal. Its fur is constantly advancing in price. Miller found that the brown rat may breed in any month in the year, and that five or six litters with an average of ten young may be a usual record for a year. Sexual maturity is reached by the end of the fourth month. This information is significant in view of the importance of the rat as a carrier of disease. Evermann reported during the year that two fur seals, which were brought to Washington in June, 1910, were alive and well in September, 1911, and had more than doubled in weight. Evermann suggested that the information concerning the habits and needs of these animals may be utilized in establishing young seals in natural breeding grounds. These might be upon inland lakes, as the animals seem not to be injuriously affected by fresh water.

EMBRYOLOGY. It has generally been believed that in animals with three body layers the sex cells arise in the middle layer. Allen stated, however, that in *Amia* and *Lepidosteus* the sex cells are entodermal in origin, migrating after their formation to a final position in the mesenchyme. He thinks that not all animals are alike in this respect, some perhaps forming the sex cells more in the generally accepted way, though in amphibians there is reason to believe that they arise in *Amia*.

ZULULAND. A district attached to NATAL (q. v.).

